Yoder, Mackenzie P

From: Yoder, Mackenzie P
Sent: Thursday, November 30, 2023 2:26 PM
To: chad.oldham@beazer.com
Cc: edwardsd@weihe.net; Mundy, Sara C CIV USARMY CELRL (USA)
Subject: Spring Creek Subdivision Stormwater Outfall

Spring Creek Subdivision Stormwater Outfall
2023-73-6-MPY-X
Lat: 40.088727 Long: -86.480012
Boone County

Hello,

The information regarding the above project has been verified as meeting the conditions of an IDEM Section 401 Water Quality Certification.

Please do not hesitate to reach out if you have any questions,

Thanks!

Mackenzie Yoder, Wetlands Project Manager
Wetlands Section, Office of Water Quality
100 North Senate Avenue, Room 1255
Indianapolis Indiana 46204
Phone: (317) 473-0241
mpyoder@idem.IN.gov

Section 401 Water Quality Certification and Wetlands Program: http://www.in.gov/idem/wetlands
Stormwater Program: http://www.in.gov/idem/stormwater
Indiana Stormwater Quality Manual: http://www.in.gov/idem/stormwater/2363.htm

Indiana Department of Environmental Management

IDEM values your feedback.

Yoder, Mackenzie P

From: Turner, James
Sent: Thursday, November 16, 2023 12:05 PM
To: Yoder, Mackenzie P
Subject: FW: Notification on a project in Lebanon, Indiana
Attachments: USACE Submittal 2023.11.16.pdf

JTurner2@idem.in.gov | IDEM Office of Water Quality | Office: 317-234-6352

From: Darrell Edwards <edwardsd@weihe.net>
Sent: Thursday, November 16, 2023 12:00 PM
To: celrl.door.to.the.corps@usace.army.mil
Cc: Jim Pence <pencej@weihe.net>; Turner, James <JTurner2@idem.IN.gov>
Subject: Notification on a project in Lebanon, Indiana

Attached is PCN for a project in Lebanon, Indiana for your processing relative to 404. Let me know if you need a hard copy plot.

Darrell

Darrell A. Edwards, P.E., CFM
Project Engineer
Weihe Engineers, Inc.
10505 N. College Avenue
Indianapolis, Indiana 46280
800-452-6408
317-515-8738 *cell*
edwardsd@weihe.net *email*

WEIHE ENGINEERS
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November 16, 2023

Indiana Department of Environmental Management
Office of Water Quality, Wetlands and Storm Water Section
Section 401 WQC/Isolated Wetlands Program
100 North Senate Avenue, IGCN, Room 1255
Indianapolis, Indiana 46204-2251

RE: **Section 401 WQC Regional General Permit Notification**
Stormwater Outfall Construction
Spring Creek Development
Lebanon, Boone County, Indiana

Dear Sirs:

Attached for your review and processing is a submittal of the notification and supporting documentation reflecting the intent of Beazer Homes of Indiana, LLC to comply with the general conditions of RGP No. 1. Documents and application for the construction of the stormwater outfall into Storms Creek for the proposed residential development of Spring Creek.

If you have any questions concerning this notification or supporting documents enclosed, please do not hesitate to contact me.

Sincerely,

WEIHE ENGINEERS, INC.

Darrell A. Edwards

Darrell A. Edwards, P.E., CFM
Project Engineer

c: Chad Oldham, Beazer Homes of Indiana, LLC
US Army Corps of Engineers

Enclosure

SECTION 401 WQC REGIONAL GENERAL PERMIT NOTIFICATION

State Form 51937 (R5 / 7-18)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM) and U.S. ARMY CORPS OF ENGINEERS (USACE)

Authorities: Section 401 Water Quality Certification, Section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbor Act

INSTRUCTIONS: 1. Familiarize yourself with the terms and conditions of this permit.
2. Read the instructions before filling out this form.
3. All applicable sections of this two (2) page form must be completed.

AGENCY USE ONLY
Date Received *(mm/dd/yyyy)*
IDEM ID
Processing Date *(mm/dd/yyyy)*

APPLICANT INFORMATION

Name of Project: Spring Creek Development	Designation Number:
Applicant: Beazer Homes of Indiana, LLC	Agent *(Name of Company)*: Weihe Engineers
Contact Person: Chad Oldham	Contact Person: Darrell Edwards
Address *(number and street)*: 9405 Delegates Row City: Indianapolis State: Indiana ZIP Code: 46240	Address *(number and street)* : 10505 N. College Ave. City: Indianapolis State: Indiana ZIP Code: 46280
Telephone Number: (317)-443-2712	Telephone Number: (317)-846-6611
E-mail Address: Chad.Oldham@beazer.com	E-mail Address: edwardsd@weihe.net

PROJECT LOCATION

County: Boone		Nearest Town: Lebanon	
Quad Name: Lebanon	Section: 13	Township: 19N	Range: 1W
Latitude: N 40° 05' 20.0"		Longitude: W 86° 28' 48.7"	

Project Address and Driving Directions:
The project located on the north side of CR W 300N between the railroad and SR 39 and can be reached from Lebanon, Indiana using SR 39 going north to CR W 300N and turning left. The site can also be reached by taking I-65 north to the U.S. 52 N exit. From US 52 go north to turn right on to CR W 300N and go east until crossing the railroad tracks. The site will be on the left.

EXISTING CONDITIONS ON THE PROJECT SITE

Lake: ☐ Yes ☑ No	Name of Lake:
Stream: ☑ Yes ☐ No	Name of Stream: Storms Creek Stream Type: ☑ Perennial ☐ Intermittent ☐ Ephemeral
Wetlands: ☐ Yes ☑ No	Acreage on the site by Wetland Type(s): _____ Emergent _____ Scrub-Shrub _____ Forested
	Date *(mm/dd/yyyy)* of Wetland Delineation: Date *(mm/dd/yyyy)* of the U.S. Army Corps of Engineers Jurisdiction Correspondence:

PROJECT IMPACTS

Activity Description:
Storm sewer outfall pipe with end section and stream stablization.

Purpose of Project:
The developed stormwater runoff from site will be managed through a stormwater management basin with a control structure and outlet pipe to regulate the discharge into the creek.

For Lake Impact *(Acceptable fill is defined in the instructions)*:

(1) Linear feet of shoreline impact *(Example – Seawall)*: N/A

(2) Type of fill below the Ordinary High Water Mark: _____ Volume *(Cubic Yards)*: _____ Acres: _____

(3) Does the shoreline or open water area have vegetation present? ☐ Yes ☐ No
If Yes, are you proposing natural shoreline stabilization? ☐ Yes ☐ No Description:

(4) Open water fill beyond shoreline *(Examples – Boat Well, Underwater Beach)*: Type of Fill: _____ Acres: _____

For Stream Impact *(Acceptable fill is defined in instructions)*:

(1) Total linear feet of stream impact *(Examples - bank stabilization, bridge construction or culvert placement, seawall work)*: 20

(2) Total acre(s) of stream impact: 0.01

(3) Type of fill below the Ordinary High Water Mark: concrete pipe and stone Volume *(Cubic Yards)*: 5

(4) Proposed start date of work in the stream *(mm/dd/yyyy)*: 12/01/2023 Proposed end date of work in the stream *(mm/dd/yyyy)*: 01/15/2024

(5) Channel width in feet *(See instructions)*: 20 Channel depth in feet *(See instructions)*: 6

(6) Cross-sectional area below the Ordinary High Water Mark: 40 sf

(7) For stream crossings, type of structure proposed to be Installed *(Examples: three-sided or four-sided culvert, bridge, pipe)*: N/A

(8) For stream crossings, width of culvert structure/diameter of pipe to be Installed *(feet)*: N/A Length of culvert structure/pipe *(feet)*: ____

(9) For stream crossings, substrate type (i.e. sand, soil or unconsolidated till, bedrock or consolidated till): N/A

(10) Open water fill that projects beyond the stream bank: Type of fill: N/A Acre(s) of open water impact: 0

For Wetland Impact *(Acceptable fill is defined in instructions)*:

(1) Type of fill: N/A

(2) Acre(s) of Impact: 0 Emergent 0 Scrub-Shrub 0 Forested

SIGNATURE OF APPLICANT – STATEMENT OF AFFIRMATION

I swear or affirm, under penalty of perjury as specified by IC 35-44.1-2-1 and other penalties specified by IC 13-30-10, that the statements and representations in this notification are true, accurate, and complete.

I certify that I have the authority to undertake and will undertake the activities exactly as described in this notification form. I am aware that there are penalties for submitting false information. I understand that any changes in project design subsequent to IDEM's and the USACE's granting of authorization to discharge to a water of the U.S. are not authorized, and that I may be subject to civil and criminal penalties for proceeding without proper authorization. I agree to allow representatives of IDEM and the USACE to enter and inspect the project site. I understand that the granting of other permits by local, state, or federal agencies does not release me from the requirement of obtaining the authorization requested herein before commencing the project.

Signature of Applicant: Chad M. Oldham Date *(mm/dd/yyyy)*: 10/31/2023

Printed Name of Applicant: Chad Oldham Title: Director of Land Development

Enclose copies of the following documents *(all enclosures must be on 8.5" by 11" paper).* Failure to provide all applicable documents and information may result in a determination that the proposed project is out of scope.

(1) ☑ Location Map

(2) ☑ Drawings of existing site and proposed project

(3) ☑ Cross sections of proposed activities showing extent of fill waterward *(for seawall, shoreline, and stream bank stabilization impacts)*

(4) ☑ Cross sections of proposed activities showing the bankfull width or Ordinary High Water Mark of the stream

(5) ☑ At least three photos of the site, labeled

(6) ☑ Copy of wetland delineation report *(for projects with wetland impacts)*

(7) ☑ Copies of all correspondence from the USACE *(for projects with wetland impacts)*

(8) ☑ Copies of all correspondence from the Indiana Department of Natural Resources, Division of Nature Preserves *(required)*

Please Note:

(1) It is recommended that you send this form and the attachments **via certified mail.** The agencies will **not** notify you when this form is received.

(2) IDEM and the USACE will review this form and all attachments for completeness and accuracy. You will not be contacted during the application process unless deficiencies are identified at which time the agencies may require additional information to verify that the project meets all conditions of the Regional General Permit and the Section 401 Water Quality Certification (WQC). If you are not contacted by IDEM within thirty (30) days of the date IDEM receives this notification form, your project is authorized, subject to the terms and conditions of the Section 401 Water Quality Certification and its conditions. You will not receive a written confirmation of authorization from IDEM, however the USACE will issue written authorization.

(3) Read all the terms and conditions of the IDEM Regional General Permit, including all USACE and IDEM conditions. The terms and conditions of this general permit as instituted by IDEM can be found at: http://www.in.gov/idem/wetlands/2353.htm . Do not submit this notification form or commence work on the proposed project until you understand and are familiar with the limitations and restrictions of the IDEM Regional General Permit Notification Form.

(4) Consult this webpage for more information: http://www.in.gov/idem/wetlands/index.htm

Upon completion of the application, mail this form and all enclosures to:

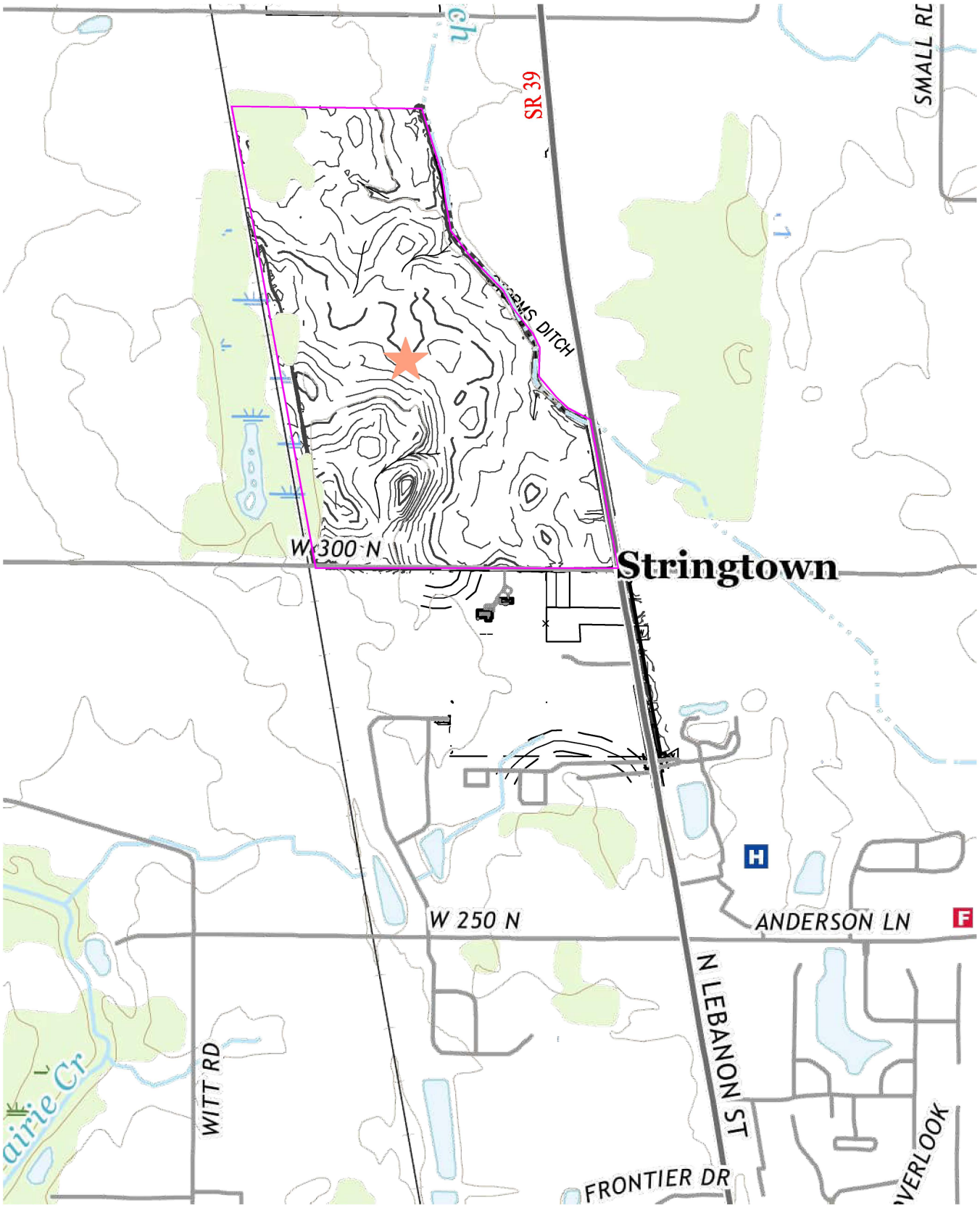
Indiana Department of Environmental Management
Office of Water Quality, Wetlands and Stormwater Section
Section 401 WQC/Isolated Wetlands Program
100 North Senate Avenue, IGCN, Room 1255
Indianapolis, Indiana 46204-2251

U.S. Army Corps of Engineers
Regulatory Branch

For office locations serving Indiana, please visit:
http://www.usace.army.mil/Locations.aspx

LOCATION: C:\1-DAE\Residential\Jim Pence\W210264-200 SPRING CREEK\ACAD Working\W210264-200 Drainage Exhibit 23.dwg
DATE/TIME: June 15, 2023 - 11:07am
PLOTTED BY: edwardsd

BACKGROUND TAKEN FROM USGS QUAD SHEET LEBANON, INDIANA



PROJECT LOCATION

SCALE: 1" = 1000'
0 250 500 1000

N
W E
S

LOCATION MAP
LEBANON, IN

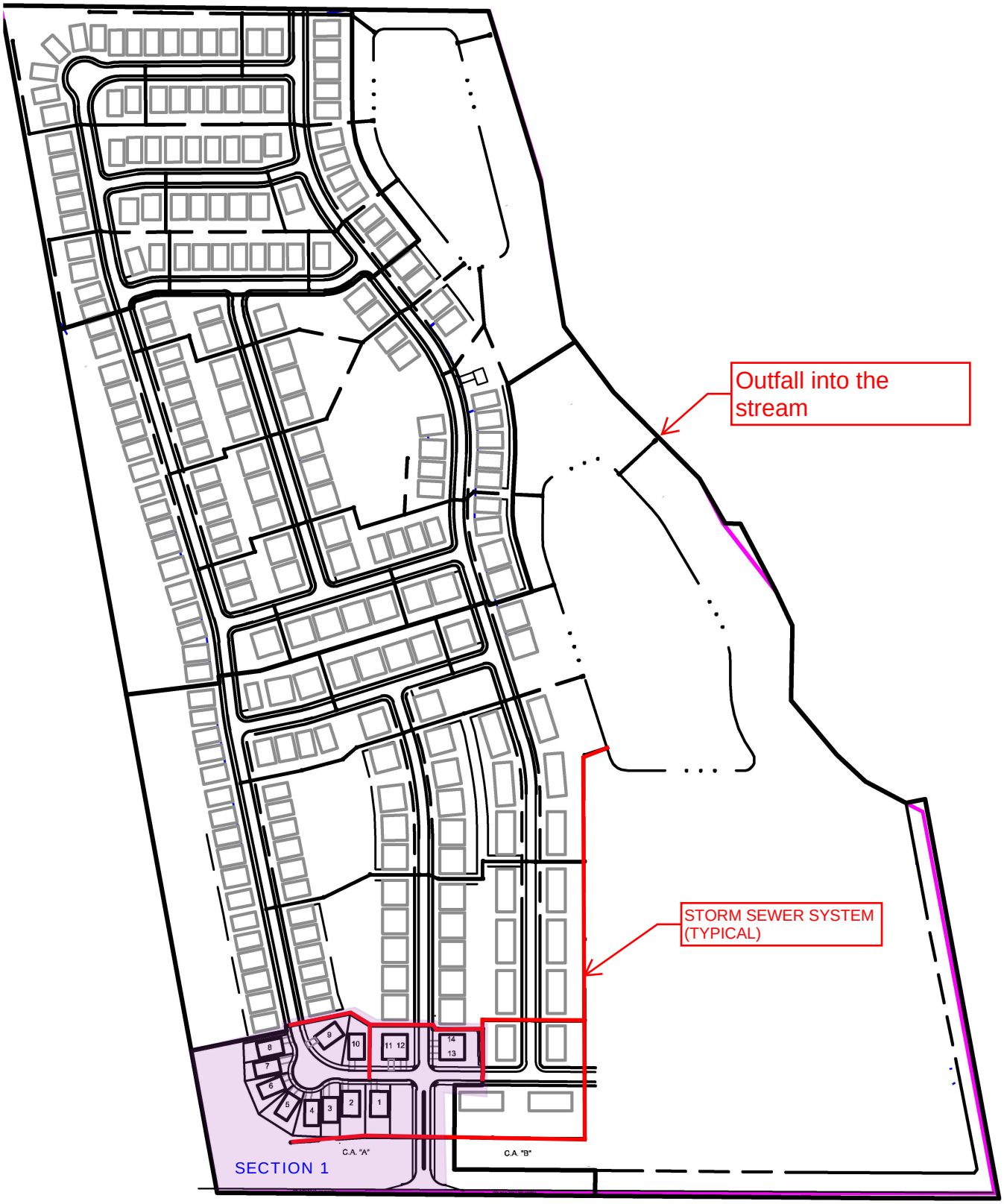
DATE: JUNE 01, 2023

SPRING CREEK BEAZER HOMES

WEIHE ENGINEERS
10505 N. College Avenue
Indianapolis, Indiana 46280
weihe.net
317 | 846 - 6611

FIGURE 1.1

LOCATION: C:\1-DAE\Residential\Jim Pence\W210264-200 SPRING CREEK\ACAD Working\W210264-200 Drainage Exhibit 23.dwg
DATE/TIME: September 02, 2023 - 12:41am
PLOTTED BY: edwardsd



SPRING CREEK

BEAZER HOMES

WEIHE ENGINEERS

10505 N. College Avenue
Indianapolis, Indiana 46280
weihe.net
317 | 846 - 6611

SCALE: 1" = 400'

0 150 200 400

FIGURE 3.1

N W E S

BMP LOCATION MAP

LEBANON, IN

DATE: SEPTEMBER 01, 2023

PHASE II EROSION CONTROL (AFTER MAJOR EARTHWORK)

LEGEND

- IP - INLET PROTECTION (DANDY SACKS AND WIRE SILT FENCES) FOR PROPOSED STRUCTURES (SEE TOWN OF CICERO STANDARD DETAILS)
- IP - PROPOSED INLET PROTECTION (DANDY SACKS AND WIRE SILT FENCES) FOR EXISTING STRUCTURES REQUIRED. (SEE TOWN OF CICERO STANDARD DETAILS)
- PERMANENT SEEDING (USE PLANTING CHART) AT A MINIMUM, MULCH IS REQUIRED.
- EROSION CONTROL BLANKET (USE STAPLE PATTERN N.A.G. S150.)
- TEMPORARY SEEDING
- SF - SHEET FLOW PROTECTION
- SWALE
- D - CONSTRUCTION LIMITS
- * - LOCATION WHERE STORMWATER LEAVES SITE
- ROCK CHECK DAM
- TREE PROTECTION FENCE

DISTURBED ACREAGE =
OFFSITE = 8.31 ± AC.
ONSITE = 52.24 ± AC.

POST CONSTRUCTION SEQUENCING

THE PURPOSE OF THE POST CONSTRUCTION PHASE IS TO IDENTIFY AND MAINTAIN ALL POST CONSTRUCTION BEST MANAGEMENT PRACTICE (BMP) STRUCTURES THUS REDUCING RUNOFF AND CONTROLLING POLLUTANTS. THE FOLLOWING SEQUENCING SHOULD BE FOLLOWED AS MUCH AS POSSIBLE.

1. DISTRIBUTE POST CONSTRUCTION BMP OPERATIONS AND MAINTENANCE MANUAL (O&M MANUAL) TO OWNER AND HOME OWNERS ASSOCIATION.THE O&M MANUAL IDENTIFIES AND LOCATES THE BMP STRUCTURE FOR THE OWNER.
2. STORMWATER WET DETENTION POND BMP OWNERS MUST ROUTINELY INSPECT BMP TO VERIFY THAT ALL BMP COMPONENTS ARE FUNCTIONING AS DESIGNED AND ARE NOT IN DANGER OF FAILING. ALL BMP NEED MAINTENANCE TO FUNCTION AS WATER QUALITY ENHANCEMENTS. MAINTENANCE CAN RANGE FROM DREDGING SEDIMENT OUT OF THE TREATMENT AREA TO MOWING GRASS.
3. BMP OWNER IS RESPONSIBLE FOR THE MAINTENANCE OF THE BMP AND ANY COSTS ASSOCIATED WITH MAINTAINING THE BMP.
4. BMP OWNER SHALL KEEP THE BMP FREE FROM LITTER AND WOODY GROWTH. REFER TO THE INSPECTION AND MAINTENANCE GUIDELINES FOR FURTHER CLARIFICATION.
5. SEDIMENT THAT COLLECTS IN THE BMP SHALL BE REMOVED WHEN IT ADVERSELY AFFECTS THE ABILITY OF THE BMP TO PERFORM AS A WATER QUALITY CONTROL DEVICE. SEDIMENT SHALL BE REMOVED FROM THE POND WHEN THE WATER DEPTH IS 8 FEET OR LESS.

NOTES:

1. PERSON IN CHARGE OF SWPPP IMPLEMENTATION:

BEAZER HOMES OF INDIANA, LLC
9465 COUNSELORS ROW, SUITE 125
INDIANAPOLIS, IN 46240
TELEPHONE: (317) 443-2712
CONTACT PERSON: CHAD OLDHAM
EMAIL: CHAD.OLDHAM@BEAZER.COM

N / W / E / S

SCALE: 1" = 50'
0 25 50 100

811
Know what's below. Call before you dig.
Within Indiana Call
811 or 800-382-5544
24 Hours a Day, 7 Days a Week.
PER INDIANA STATE LAW IC 8-1-26. IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

10505 N. College Avenue
Indianapolis, Indiana 46280
weihe.net
317 | 846 - 6611
800 | 452 - 6408
317 | 843 - 0546 fax
ALLAN H. WEIHE, P.E., L.S. - FOUNDER
WEIHE ENGINEERS
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PROJECT NO.:	W21.0264-200
DWG NAME:	C206 SWPPP Phase 2
DESIGNED BY:	SCS
DRAWN BY:	MEN
CHECKED BY:	JP
DATE:	08/03/2023

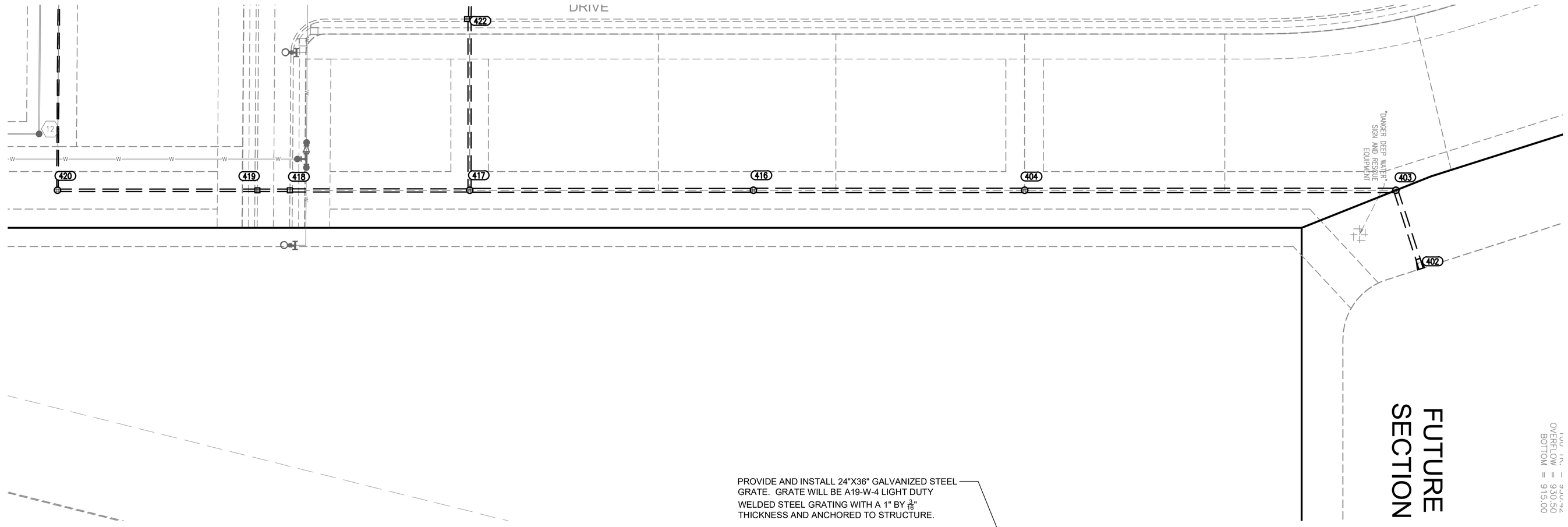
DATE	BY	REVISIONS AND ISSUES
10.27.2023	SCS	REVISED PER TAC AND AGENCY COMMENTS

10/25/2023
DUANE A. SHARRER REGISTERED No. 890258 STATE OF INDIANA PROFESSIONAL ENGINEER
DUANE A. SHARRER P.E. #890258

PREPARED FOR:
SPRING CREEK SECTION 1
3080 NORTH STATE ROAD 39, LEBANON, INDIANA 46052
OFFSITE SWPPP PHASE 2
Part of the NW Quarter of Section 13, Township 19 North, Range 1 West, Center Township, Boone County, Indiana

SHEET NO.
C209
PROJECT NO.
W21.0264-200

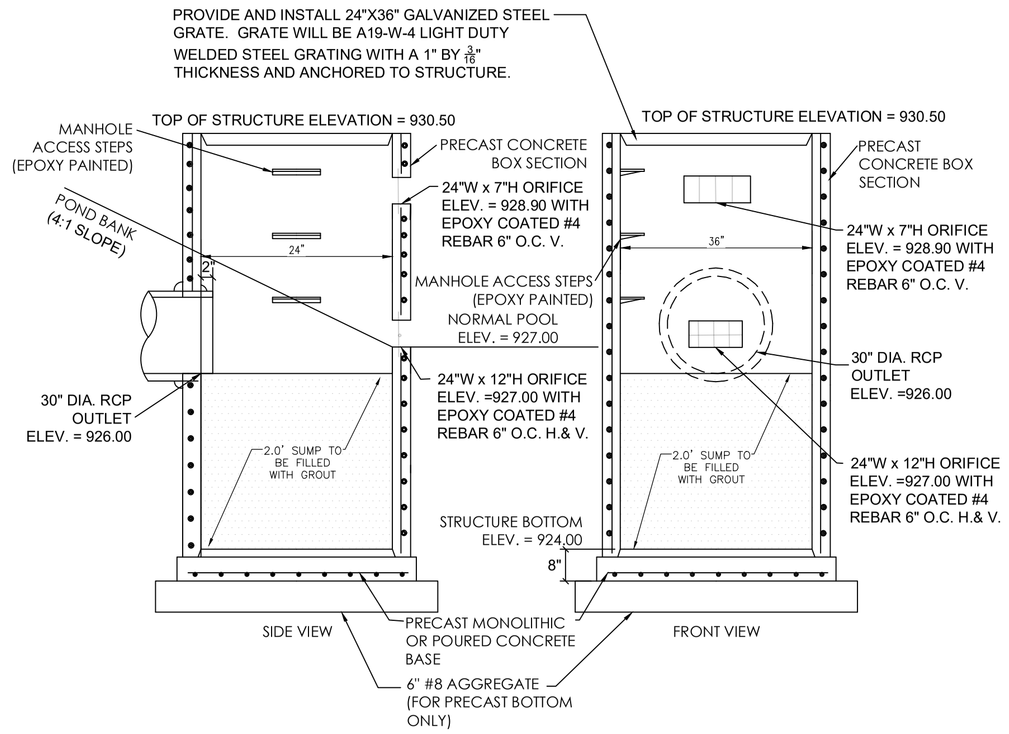
LOCATION: H:\2021\W210264\210264-200\Section 1\Engineering\design\conset\C206 SWPPP Phase 2.dwg
LAYOUT: C209
DATE/TIME: October 30, 2023 - 3:08pm
PLOTTED BY: StatonS



LEGEND

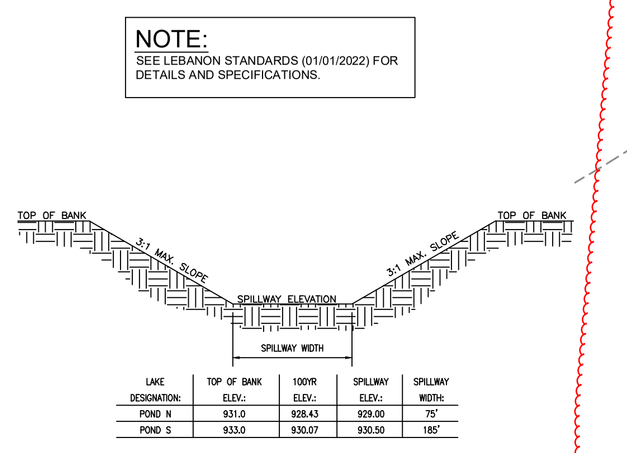
	=	RIGHT-OF-WAY LINE
	=	PROPOSED STORM SEWER LINE
	=	EXISTING STORM SEWER LINE
	=	SSD
	=	PROPOSED SANITARY SEWER LINE
	=	EXISTING SANITARY SEWER LINE
	=	SANITARY SEWER MANHOLE
W	=	PROPOSED WATER LINE
	=	STORM BEEHIVE INLET
	=	STORM INLET
T.O.C.	=	TOP OF CASTING
INV.	=	INVERT
RCP	=	REINFORCED CONCRETE PIPE
M.H.	=	MANHOLE
STR.	=	STRUCTURE
D.E.	=	DRAINAGE EASEMENT
D.&U.E.	=	DRAINAGE AND UTILITY EASEMENT
D.U.&S.S.E.	=	DRAINAGE, UTILITY AND SANITARY SEWER EASEMENT
	=	CONCRETE END SECTION
ME	=	MATCH EXISTING

TYP.	=	TYPICAL
PROP.	=	PROPOSED
EX.	=	EXISTING
R.	=	RADIUS
V.W.	=	VARIABLE WIDTH
MLAG	=	MINIMUM LOWEST ADJACENT GRADE
ROW	=	RIGHT-OF-WAY
B-B	=	BACK OF CURB
B.S.L.	=	BUILDING SETBACK LINE
HP	=	HIGH POINT
	=	ADA RAMP
	=	FIRE HYDRANT
	=	PROPOSED 8" ASPHALT PATH



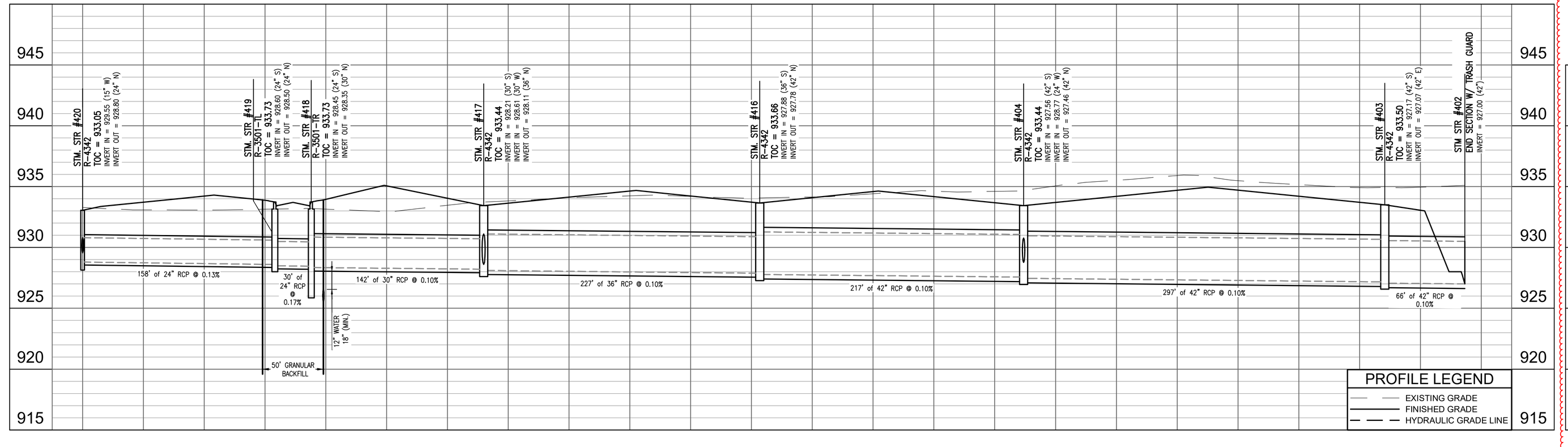
POND S OUTLET CONTROL STRUCTURE NO. 401
(NO SCALE)

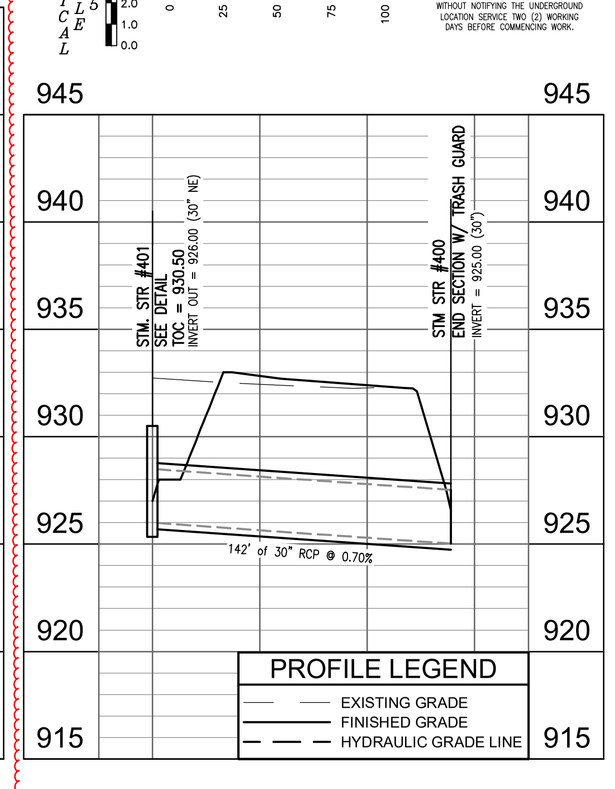
NOTE:
SEE LEBANON STANDARDS (01/01/2022) FOR DETAILS AND SPECIFICATIONS.

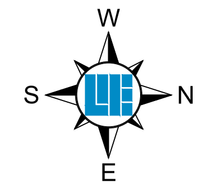


LAKE DESIGNATION:	TOP OF BANK ELEV.:	100YR ELEV.:	SPILLWAY ELEV.:	SPILLWAY WIDTH:
POND N	931.0	928.43	929.00	75'
POND S	933.0	930.07	930.50	185'

EMERGENCY SPILLWAY (TYPICAL SECTION)
NOT TO SCALE







VERTICAL SCALE: 5.0 4.0 3.0 2.0 1.0 0.0

HORIZONTAL SCALE:
1"=50'
0 25 50 75 100

811
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Call before you dig.
Within Indiana Call
811 or 800-382-5544
24 Hours a Day, 7 Days a Week.
PER INDIANA STATE LAW IC 8-1-26, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

10505 N. College Avenue
Indianapolis, Indiana 46280
weihe.net

317 | 846 - 6611
800 | 452 - 6408
317 | 843 - 0546 *fax*

ALLAN H. WEIHE, P.E., L.S. - FOUNDER

WEIHE ENGINEERS
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Landscape Architecture
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PROJECT NO:	W21.0264-200	
DWG NAME:	C600 Storm PnP	
DESIGNED BY:	SCS	
DRAWN BY:	MEN	
CHECKED BY:	JP	
DATE:	08/03/2023	

REVISIONS AND ISSUES	DATE	BY
ISSUED FOR FAC AND AGENCY COMMENTS	10/7/2023	SCS

10/25/2023

DUANE A. SHARRER
REGISTERED
No. 890258
STATE OF INDIANA
PROFESSIONAL ENGINEER

DUANE A. SHARRER P.E. #890258

PREPARED FOR:
SPRING CREEK SECTION 1
3080 NORTH STATE ROAD 39, LEBANON, INDIANA 46052

STORM SEWER PLAN AND PROFILE
Part of the NW Quarter of Section 13, Township 19 North, Range 1 West, Center Township, Boone County, Indiana

SHEET NO.
C601

PROJECT NO.
W21.0264-200

LOCATION: K:\2021\W21.0264\1.0 Engineering\Design\Layout\C600 Storm PnP.dwg
LAYOUT: C601
DATE: October 30, 2023 - 8:31am
PLOTTED BY: tpeters

STORM SEWER REINFORCED CONCRETE PIPE

1.) Reinforced Concrete Pipe Shall Be Class III, IV, Or V As Specified In ASTM C76.

2.) Reinforced Elliptical Concrete Pipe Shall Be Class HE–III Or HE–IV As Specified In ASTM C507.

3.) Lift Holes Are Not Allowed For Pipe Less Than 24 Inches In Diameter. A Maximum Of Two Lift Holes Are Allowed For Pipe 24 Inches In Diameter Or Larger. Lift Holes Shall Be Repaired According To Most Recent INDOT Standard Specifications.

4.) Fittings And Specialties Shall Be In Accordance With The Specifications For The Type Of Pipe Being Used.

5.) Each Pipe Section Shall Be Marked With Date Of Manufacturer, Size And Class Of pipe, Specification Designation, Manufacturer And Plant Identification.

6.) Pipe Shall Be Furnished With A Bell Or Groove On One End Of A Unit Of Pipe And A Spigot Or Tongue On The Adjacent End Of The Adjoining Pipe. All Joints A Shall Have Groove On The Spigot For Placement Of A Rubber "O"–Ring Or Profile Gasket In Accordance With ASTM C443. The Gasket Shall Be A Continuous Ring Which Fits Snugly Into The Annular Space Between The OverLapping Surfaces Of The Assembled Pipe Joint.

STORM SEWER GENERAL NOTES

1.) Storm Sewer Pipe Of Other Material Or Material Not Meeting These Specifications Shall Require The Prior Written Approval Of The City Of Lebanon.

2.) As–Built Drawings Shall Be Submitted To The City Of Lebanon For Their Records. Contractor Shall Submit As–Built Drawings Within 30 Days of Successful Completion Of All Testing Requirements.

3.) Contractor Shall Allow The City Of Lebanon The Opportunity To Inspect The Installation Of The Pipe And Bedding Material Prior To Proceeding With Backfilling An Open Trench. The City Of Lebanon Shall Be Given 48 Hours Notice Of The Contractor's Intent To Install Storm Sewer Piping And Structures.

4.) The Smallest Permissible Storm Sewer Pipe Diameter Is 12 Inches.

5.) Drawings And Calculations For Runoff, Retention And Discharge Rates Shall Be Provided To The City Engineer. Drawings And Calculations Shall Be Certified By A Registered Professional Engineer.

6.) All Projects With Storm Sewer Systems Must Be Approved By The City Engineer.

7.) All Storm Inlet To Mainline Connections Shall Be Made Concrete Pipe.

8.) Contractor Shall Inspect All Storm Sewer Material Prior To Installation, Removing & Replacing All Unsuitable Material At The Contractor's Expense.

9.) Store Storm Sewer Materials In An Area Safe From Damage And Deterioration.

10.) Keep Interior Of Pipe & Manholes Free From Dirt And Foreign Material.

11.) Load And Unload Material To Avoid Shock & Damage. Do Not Drop Material.

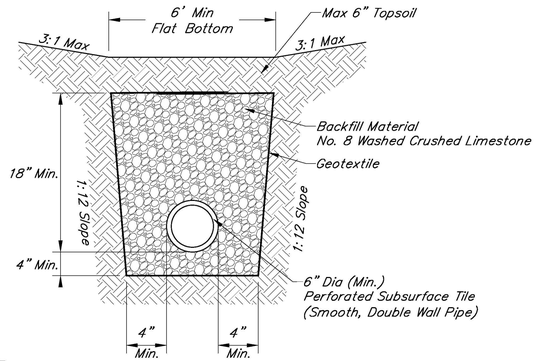
STORM SEWER DEFLECTION AND TELEVISING

1.) Televising Is Required For All Pipe City Of Lebanon Shall Be Given 24 Hour Written Notice Of Televising. A Camera Equipped With Remote Control Devices To Adjust Light Intensity And 1,000 Linear Feet Of Sewer Cable Shall Be Provided. The Camera Shall Transmit A Continuous Image To The Television Monitor As It Is Being Pulled Through Pipe. The Image Shall Be Clear Enough To Enable The City Of Lebanon Representative And Others Viewing The Monitor To Easily Evaluate The Interior Condition Of The Pipe. The Camera Shall Stamp The Video Tape With Linear Footage And Project Number, And An Audio Voice–Over Shall Be Made During The Inspection Identifying Problems. Contractor Shall Bear All Televising Costs.

2.) The Pipe Shall Be Thoroughly Cleaned Before Installing Camera And Commencing Televising.

3.) If Any Pipe And/Or Joint Is Found To Be Leaking In Such A Way As Soil Migration Is Likely In The Sole Judgment Of The City, The Contractor Shall Repair That Portion Of The Work To The Satisfaction And Approval Of The City Of Lebanon.

4.) Contractor Is Responsible For All Cost Associated With Testing And Correction Of All Encountered Deficiencies.

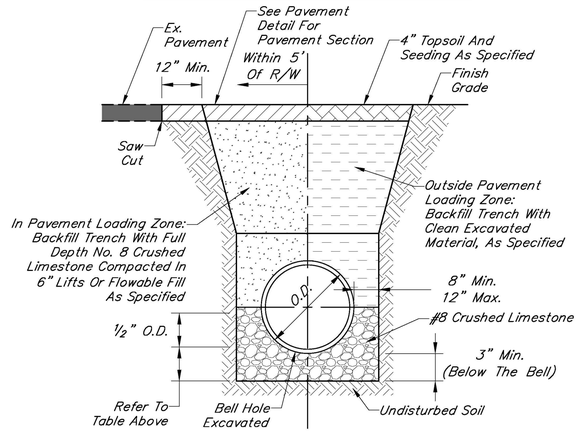


NOTE:
1. Swales Shall Be Constructed With A Minimum 0.5 Percent Profile Grade.
2. No Sump Pump Discharge Shall Be Directed So As To Impact Neighboring Properties Or Streets. Sump Pumps Shall Be Properly Connected To The Storm Sewer System Or A Subsurface Drain Provided By The Project Developer.
3. Gutters And Downspouts Shall Not Be Connected To The Sanitary Sewer System Or To The Street Underdrain System.

SWALE UNDERDRAIN DETAIL

Scale: None

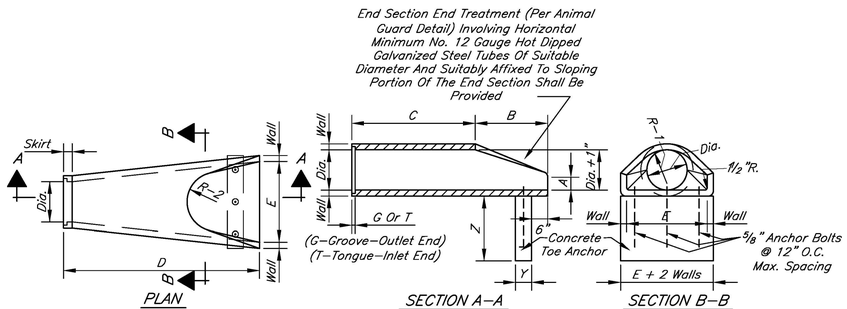
PIPE SIZE	12" TO 15"	18" TO 30"	36" & OVER
BEDDING BELOW THE PIPE BARREL	4"	O.D. / 4	8"



NOTE:
1. Pavement Loading Zone Is The Area Within 5 Feet Of Any Right–Of–Way Of The City Of Lebanon.

RCP PIPE TRENCH

Scale: None

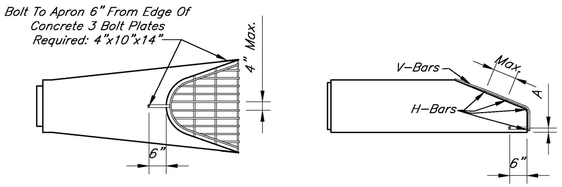


PLAN SECTION A–A SECTION B–B

DIA.	WALL	G or T	WT. SEC.	A	B	C	D	E	DIA.+1"	R–1	R–2	SKIRT	Y	Z
12	2	1 1/2	530	4	24	48 7/8	72 7/8	24	13	10 1/16	9	3 1/2	6	24
15	2 1/4	2	740	6	27	46	73	30	16	12 1/2	11	3 1/2	6	24
18	2 1/2	2 1/2	990	9	27	46	73	36	19	15 1/2	12	4	6	24
21	2 3/4	2 1/2	1280	9	35	38	73	42	22	16 1/8	13	4	6	24
24	3	2 1/2	1520	9 1/2	43 1/2	30	73 1/2	48	25	16 11/16	14	4 1/2	6	24
27	3 1/4	2 1/2	1930	10 1/2	48	25 1/2	73 1/2	54	28	17 3/4	14 1/2	4 1/2	6	24
30	3 1/2	3	2190	12	54	19 3/4	73 3/4	60	31	18 5/16	15	5	6	24
33	3 3/4	3 3/8	3150	13 1/2	58 1/2	39 1/4	97 3/4	66	34	23 3/4	17 1/2	5 1/2	6	24
36	4	3 1/2	4100	15	63	34 3/4	97 3/4	72	37	24 1/16	20	5 1/2	6	24
42	4 1/2	3 3/4	5380	21	63	35	98	78	43	27 1/4	22	5 1/2	6	24
48	5	4 1/4	6550	24	72	26	98	84	49	28 1/8	22	5 3/4	24	36
54	5 1/2	4 3/4	8040	27	65	35	100	90	55	32 7/8	24	6 1/4	30	36
60	6	5	8750	30	60	39	99	96	61	36 3/4	24	6 3/4	30	36
66	6 1/2	5 1/2	10630	24	78	21	99	102	67	35 11/16	24	7 1/4	30	36
72	7	6	12520	34	78	21	99	108	73	38 5/8	24	7 3/4	36	36
78	7 1/2	6 1/2	14430	24	78	21	99	114	79	41 15/16	24	8 1/2	36	36
84	8	7	16350	24	78	21	99	120	85	44 13/16	24	9	39	36

PRECAST CONCRETE PIPE END SECTION

Scale: None



APRON SIZE	V–BAR SIZE (ø)	H–BAR SIZE (ø)	No. OF H–BARS	BOLT DIA.	"A" DIM
12	1/2	3/8	3	1/2	4
15	1/2	3/8	3	1/2	4 1/2
18	1/2	3/8	4	1/2	4 1/2
21	1/2	3/8	4	1/2	5
24	3/8	3/4	4	1/2	5
27	3/8	3/4	4	1/2	5 1/2
30	3/8	3/4	4	1/2	5 1/2
36	1/4	1	4	3/4	8
42	1/4	1	4	3/4	8
48	1/4	1	5	3/4	8
54	1/4	1 1/2	5	3/4	8
60	1/4	1 1/2	5	3/4	8
66	1/4	1 1/2	5	3/4	8
72	1/4	1 1/2	5	3/4	9
84	1/4	1 1/2	5	3/4	10
90	1/4	1 1/2	5	3/4	10

NOTES:
1. Animal Guard Is Not Required For Culvert Crossings

ANIMAL GUARD

Scale: None

NOTES:
1. Precast Flared Reinforced Concrete Pipe End Sections Shall Be Used At Exposed Pipe Ends. Concrete Toe Anchors Shall Be Required. Plastic Pipe Shall Require A Full Length Section Of Reinforced Concrete Pipe Jointed By A Concrete Collar Prior To The Precast Concrete Pipe End Section.
2. Revetment Riprap In Accordance With The Most Recent INDOT Channel Design Guide Set On Geotextile In Accordance With The Most Recent INDOT Standard Specifications Shall Be Required At Inlet And Outlet Precast Flared Reinforced Concrete Pipe End Sections.
3. Pipe End Sections Shall Have Appropriately Designed Riprap Outlet Protection. Refer To Outlet Protection Detail On Sheet 18.

REVISIONS		
Rev. No.	Description	Date

JOHN G. LIGHTNER REGISTERED No. PE11500016 STATE OF INDIANA PROFESSIONAL ENGINEER IV

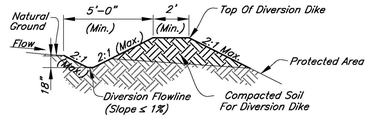
RECOMMENDED FOR APPROVAL — DESIGN ENGINEER — 01/01/2022 DATE

APPROVED — STREET COMMISSIONER — 01/01/2022 DATE

CITY OF LEBANON

STORM SEWER BEDDING DETAILS, STORM SEWER DETAILS & NOTES

SHEET 08 OF 23



Notes:

Installation:
Lay Out The Diversion By Setting Grade And Alignment To Fit Site Needs And Topography, Maintaining A Stable, Positive Channel Grade Towards The Outlet.

Remove And Properly Dispose Of Brush, Trees, And Other Debris From The Foundation Area.

Construct The Diversion To Dimensions And Grades Shown In The Construction Plans.

Construct The Diversion Ridge In Six To Eight–Inch Lifts. Compact Each Lift By Driving Wheels Of Construction Equipment Along The Ridge. Overfill And Compact The Ridge To Design Height Plus 10 Percent To Allow For Settlement.

Stabilize Outlets Prior To Or During Construction Of The Diversion, Diverting Sediment–Laden Storm Water Flow To A Temporary Sediment Trap Or A Temporary Dry Sediment Basin.

Maintenance:
Inspect Within 24 Hours Of Each Rain Event And At Least Once Every Seven Calendar Days.

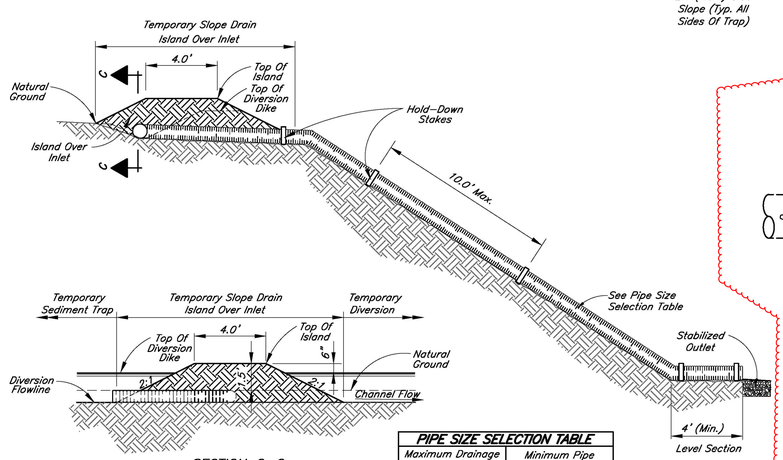
Remove Sediment From Channel To Maintain Positive Grade.

Check Outlets And Make Necessary Repairs Immediately.

Adjust Ridge Height To Prevent Overtopping.

TEMPORARY DIVERSION

Not To Scale



SECTION C–C

PIPE SIZE SELECTION TABLE	
Maximum Drainage Area Per Pipe	Minimum Pipe Diameter
0.50 acre	8 In.
0.75 acre	10 In.
1.00 acre	12 In.
>1.00 acre	Individually Designed

NOTES:

Installation:
Place Temporary Slope Drains On Undisturbed Soil Or Well Compacted Fill. Set The Slope Drain Inlet At The Bottom Of The Diversion Channels. Connect The Pipe To The Inlet Section.

Construct The Diversion Ridge By Placing Fill Over The Pipe In 6 Inch Lifts. Compact Each Lift By Hand Tamping Under And Around The Inlet, And Along The Pipe.

Make The Top Of The Fill 6 Inches Higher Than The Adjoining Diversion.

Make All Pipe Connections Watertight And Secure So That Joints Will Not Separate In Use.

Anchor The Pipe To The Face Of The Slope With Stakes Spaced No More Than 10 Feet Apart. Extend The Pipe Beyond The Toe Of Slope To A Stable Grade. Protect The Outlet From Erosion.

Grade The Diversion Channel At The Top Of The Slope Toward The Temporary Slope Drain (Slope <2%).

Stabilize All Disturbed Areas Following Installation.

Maintenance:
Inspect Weekly And Following Each Storm Event. (Remove Sediment From The Channel And Reinforce The Ridge As Needed.)

Check The Inlet For Sediment Or Trash Accumulation.

Check The Fill Over The Pipe For Settlement, Cracking, Or Piping Holes; Repair Immediately.

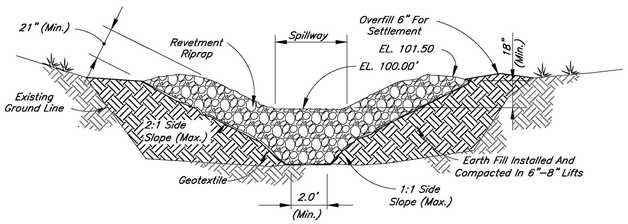
Check For Holes Where The Pipe Emerges Form The Dike; Repair Immediately.

Check The Conduit For Evidence Of Leaks Or Inadequate Anchoring; Repair Immediately.

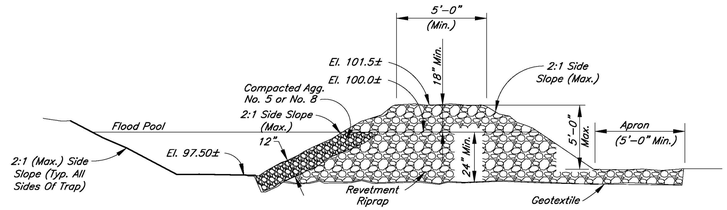
Check The Outlet For Erosion Or Sedimentation; Clean & Repair Or Extend If Necessary.

TEMPORARY SLOPE DRAIN

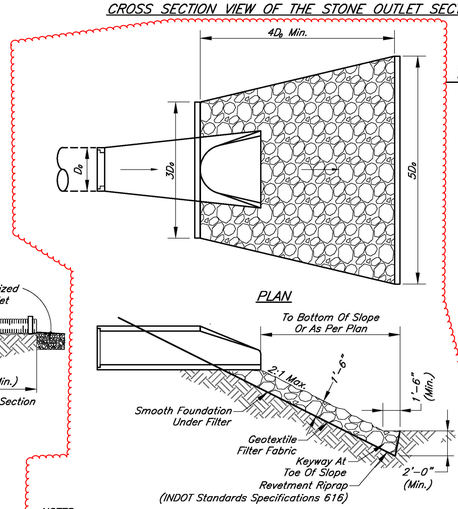
Not To Scale



EARTH EMBANKMENT AND STONE OUTLET SECTION



CROSS SECTION VIEW OF THE STONE OUTLET SECTION



PLAN

SECTION

NOTES:

Installation:
Excavate Only Deep Enough For Both Filter And Riprap. Compact Any Fill Material to The Density Of The Surrounding Undisturbed Soil.

Cut A Keyway In Stable Material At The Base Of The Slope to Reinforce The Toe; Keyway Depth Should Be 1–1/2 Times The Design Thickness Of The Riprap And Should Extend A Horizontal Distance Equal To The Design Thickness.

Place Geotextile Fabric On The Smoothed Foundation, Overlapping The Edges 12 Inches Min. Secure With Anchor Pins Spaced Every 3 Feet Along The Overlap.

Immediately After Installing The Filter, Add The Riprap To Full Thickness In One Operation. Do Not Dump Through Chutes Or Use Any Method That Causes Segregation Of Rock Sizes Or That Will Dislodge Or Damage The Underlying Filter Material.

If Fabric Is Damaged, Remove The Riprap And Repair By Adding Another Layer Of Fabric, Overlapping The Damaged Area By 12 Inches.

Place Smaller Rock In Voids To Form A Dense, Uniform, Well Graded Mass. Blend The Rock Surface Smoothly With The Surrounding Area To Eliminate Protrusions Or Over–Falls.

Inspect Periodically For Displaced Rock Material, Slumping, And Erosion At Edges, Especially Downstream Or Downslope.

Maintenance:
Inspect Periodically For Displaced rock Material, Slumping And Erosion At Edges, Especially Downstream Or Downslope.

PRECAST CONCRETE END SECTION W/ RIP RAP

Not To Scale

Notes:

The Spillway Width Varies With The Drainage Area Contributing To The Temporary Sediment Trap:

Drainage Area (acres)	Width (ft.)
1	4
2	6
3	8
4	10
5	12

The Length And Width Of The Basin Are As Shown On The Erosion Control Plan (Maximum Drainage Area Is 5 Acres).

See The Indiana Storm Water Quality Manual For Additional Information.

Installation:
Clear, Grub, And Strip All Vegetation And Root Mat From The Embankment Area.

Create Embankment Using Material Free Of Roots, Rocks, Brush, And Debris. Overfill The Embankment 6 Inches To Allow For Settling.

Excavate A Trapezoidal Stone Outlet Section From The Compacted Embankment (Section A–A).

Install Geotextile And Place Specified Stone To The Lines And Grades Shown.

Stabilize The Embankment And Other Disturbed Areas With Seed And Mulch Or Another Suitable Erosion Resistant Cover

Maintenance:
Inspect Traps Weekly And Following Each Storm Event And Immediately Repair. Check Embankment For Any Erosion And Piping Holes And Repair.

Remove Sediment When It Has Accumulated To One Half The Design Depth. Check Pool Area Side Slopes For Erosion And Repair.

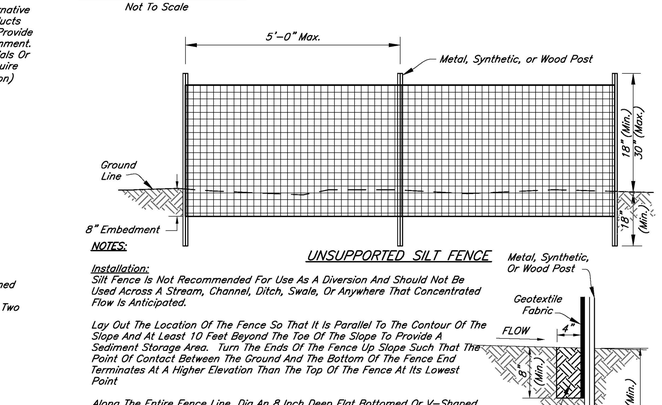
Replace Spillway Gravel Facing If Clogged.

Inspect Vegetation And Seed Again, If Necessary.

Check The Spillway Depth Periodically To Ensure A Minimum 18 Inch Depth From The Lowest Point Of The Settled Embankment To Highest Point Of The Spillway Crest. Fill Any Low Areas To Maintain The Design Elevation.

TEMPORARY SEDIMENT TRAP

Not To Scale



PLAN

SECTION A–A

NOTES:

Concrete Washouts Shall Be Located Away From Inlets, Open Drainage Facilities, Watercourses And Construction Traffic.

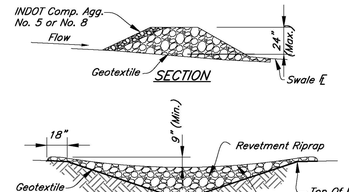
There Shall Be Concrete Washouts Of Sufficient Volume And Quantity To Contain All Liquid And Concrete Waste Generated By Washout Operations.

Once Concrete Wastes Are Washed Into The Designated Area And Allowed To Harden, The Concrete Should Be Broken Up, Removed, And Disposed Of Offsite. Dispose Of Concrete On A Regular Basis.

Plastic Lining Material Should Be A Minimum Of 10 Mil. Polyethylene Sheeting And Should Be Free Of holes, Tears, Or Other Defects That Compromise The Impermeability Of The Material

CONCRETE WASHOUT

Not To Scale



ELEVATION

NOTES:

Installation:
Excavate A Cutoff Trench Into The Swale Banks And Extend It A Minimum Of 18 Inches Beyond The Top Of Bank. Place The Rock In The Cutoff Trench And Channel to The Limits And Dimensions Shown.

Extend The Rock At Least 18 Inches Beyond The Top Of Bank To Keep Overflow Water From Undercutting The Dam As It Re–Enters The Channel.

Space Dams So That The Upstream Dam Toe Elevation And The Overflow Weir Of The Downstream Dam Top Elevation Are The Same. (A 1% Swale Slope Would Equal 200' Spacing)

Stabilize The Channel Above The Uppermost Dam.

Erosion Resistant Lining Shall Extend At Least 6" Below Lowest Dam.

Maintenance:
Inspect Check Dams And The Channel After Each Storm Event, And Repair Any Damage Immediately. If Significant Erosion Occurs Between Dams, Install A Riprap Liner In That Portion Of The Channel.

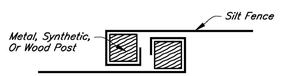
Remove Sediment Accumulated Behind Each Dam As Needed To Maintain Channel Capacity, To Allow Drainage Through The Dam, And To Prevent Large Flows From Displacing Sediment.

Add Aggregate To The Dams As Needed To Maintain Design Height And Cross Section.

When The Dams Are No Longer Needed, Remove The Aggregate And Stabilize Channel Using An Erosion Resistant Lining, If Necessary.

ROCK CHECK DAM

Not To Scale



FENCE JOINT DETAIL

Not To Scale

UNSUPPORTED SILT FENCE

NOTES:

Installation:
Silt Fence Is Not Recommended For Use As A Diversion And Should Not Be Used Across A Stream, Channel, Ditch, Swale, Or Anywhere That Concentrated Flow Is Anticipated.

Lay Out The Location Of The Fence So That It Is Parallel To The Contour Of The Slope And At Least 10 Feet Beyond The Toe Of The Slope To Provide A Sediment Storage Area. Turn The Ends Of The Fence Up Slope Such That The Point Of Contact Between The Ground And The Bottom Of The Fence End Terminates At A Higher Elevation Than The Top Of The Fence At Its Lowest Point

Along The Entire Fence Line, Dig An 8 Inch Deep Flat Bottomed Or V–Shaped Trench. Place Fence According To Manufacturer's Recommendations.

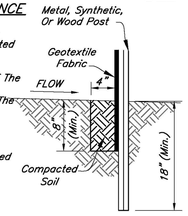
Maintenance:
Inspect The Silt Fence Weekly, And After Each Storm Event.

If Fence Fabric Tears, Starts To Decompose, Or In Any Way Becomes Ineffective, Replace The Affected Portion Immediately.

Remove Deposited Sediment When It Reaches Half The Height Of The Fence At Its Lowest Point Or Is Causing The Fabric To Bulge.

Take Care To Avoid Undermining The Fence During Clean Out.

After The Contributing Drainage Area Has Been Stabilized, Remove The Fence And Sediment Deposits, Bring The Disturbed Area To Grade, And Stabilize.



TRENCH DETAIL

SILT FENCE (SEDIMENT FENCE)

Not To Scale

REVISIONS		
Rev. No.	Description	Date

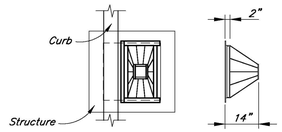
JOHN C. LIGHTNER IV — REGISTERED — No. PE11500016 — STATE OF INDIANA — PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2022 DATE
APPROVED	UTILITIES MANAGER	01/01/2022 DATE
APPROVED	WATER/WASTEWATER OPERATIONS MANAGER	01/01/2022 DATE

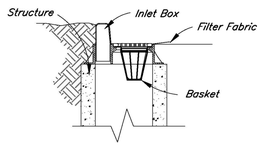
CITY OF LEBANON

EROSION CONTROL MEASURES

SHEET 18 OF 23



PLAN



SECTION

NOTES:

Installation:
Install Basket Curb Inlet Protection As Soon As Inlet Boxes Are Installed (New Development) Or Prior To Land Disturbing Activities (Existing Development).

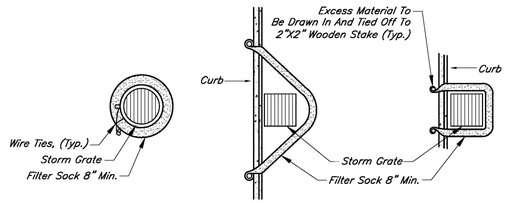
If Necessary, Adapt Basket Dimensions To Fit Inlet Box Dimensions.

Remove The Grate And Install The Frame Into The Grate Opening. Cut And Install Geotextile Fabric According To The Manufacturer's Recommendations. Replace The Grate.

Maintenance:
Inspect Daily And After Each Storm And Remove Sediment. Replace Or Clean Geotextile Fabric As Needed. Remove Tracked On Sediment From The Street (But Not By Flushing With Water) To Reduce The Sediment Load On This Curb Inlet Practice.

BASKET CURB INLET PROTECTION

Not To Scale



DRAIN INLET PLAN CURBSIDE OPTION "A" PLAN CURBSIDE OPTION "B" PLAN

NOTES:

Installation:
Filter Sock Should Maintain Solid Contact With The Surface And Be Installed In A Manner That Minimizes Gaps Between The Bottom Of The Sock And The Underlying Substrate.

Socks Placed On Unpaved Surfaces Shall Be Staked In The Center Of The Sock Or Immediately Downslope Of The Sock At The Interval Recommended By The Manufacturer. Socks Installed On Paved Surfaces Shall Have Concrete Blocks Placed Immediately Downslope Of The Sock At An Interval Recommended By The Manufacturer.

Maintenance:
Traffic Shall Not Be Permitted To Cross Filter Socks.

Inspect The Structure Weekly And After Each Rainfall Event. Damaged Socks Shall Be Repaired According To The Manufacturer's Specifications Or Replaced Within 24 Hours Of Inspection.

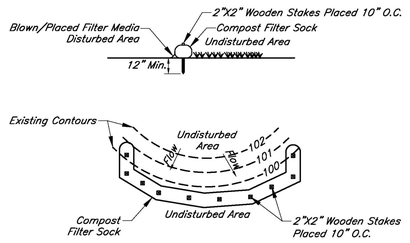
Remove Deposited Sediment When It Reaches Half The Height Of The Filter Sock At Its Lowest Point.

Take Care To Avoid Undermining The Filter Sock During Clean Out.

After The Contributing Drainage Area Has Been Stabilized, Remove And Properly Dispose Of Any Unstable Sediment And Construction Material, And Stabilize.

FILTER SOCK INLET PROTECTION

Not To Scale



NOTES:

Installation:
Filter Sock Should Maintain Solid Contact With The Soil And Be Installed In A Manner That Minimizes Gaps Between The Bottom Of The Sock And The Underlying Substrate.

Filter Socks Should Be Installed Parallel To The Contour With Both Ends Of The Sock Extended Upslope At A 45 Degree Angle To The Rest Of The Sock.

Socks Placed On Earthen Slopes Should Be Staked In The Center Of The Sock Or Immediately Downslope Of The Sock At The Interval Recommended By The Manufacturer. Socks Installed On Paved Surfaces Shall Have Concrete Blocks Placed Immediately Downslope Of The Sock At An Interval Recommended By The Manufacturer.

Maintenance:
Traffic Shall Not Be Permitted To Cross Filter Socks.

Inspect The Structure Weekly And After Each Rainfall Event. Damaged Socks Shall Be Repaired According To The Manufacturer's Specifications Or Replaced Within 24 Hours Of Inspection.

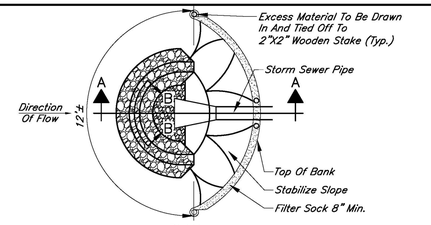
Remove Deposited Sediment When It Reaches Half The Height Of The Filter Sock At Its Lowest Point.

Take Care To Avoid Undermining The Filter Sock During Clean Out.

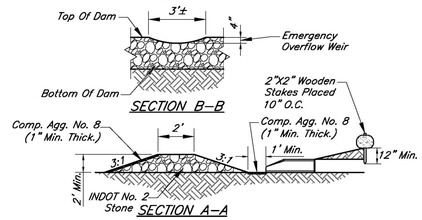
After The Contributing Drainage Area Has Been Stabilized, Remove And Properly Dispose Of Any Unstable Sediment And Construction Material, And Stabilize.

FILTER SOCK

Not To Scale



PLAN



SECTION B–B SECTION A–A

NOTES:

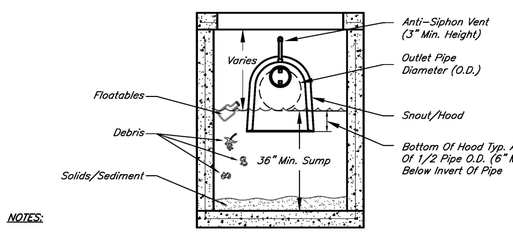
Installation:
Foundation Shall Be Laid On Geotextile Fabric.

Maintenance:
Inspect The Structure Weekly And After Each Rainfall Event.

After The Contributing Drainage Area Has Been Stabilized, Remove And Properly Dispose Of Any Unstable Sediment And Construction Material, And Stabilize.

ROCK DONUT

Not To Scale



NOTES:

Installation:

Snout/Hood Is Installed Over The Outlet Pipe Of A Catch Basin Or Stormwater Structure To Reduce Floatable Trash And Debris, Free Oils, And Other Solids From Stormwater Discharges.

Snout/Hood Shall Be Centered And Anchored Over The Outlet Pipe And Must Cover The Pipe O.D. To Ensure Proper Installation.

Structure Shall Be Sumped To Manufacture's Recommended Depth. Minimum Sump Depth Is Typically 2.5 To 3 Times The I.D. Of The Outlet Pipe Size (Minimum Of 36").

Snout/Hood Shall Be Equipped With An Anti–Siphon Vent.

Maximum Flow And Velocity Shall NOT Exceed Manufacture's Recommendation.

Maintenance:

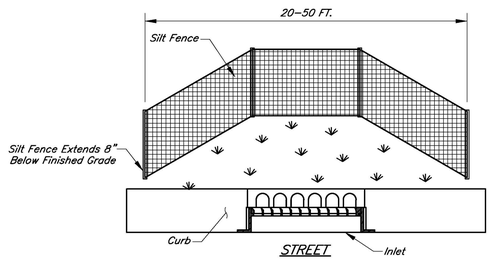
Sediment Depth And Surface Pollutants In The Sump Shall Be Measured Monthly And After Each Rain Event Of 1/2" or More.

The Sump Shall Be Emptied At Least Yearly And When The Sump Is Half Full, Or Six Inches Of Floatable Pollutants Accumulate On The Surface.

The Snout/Hood Shall Be Inspected Yearly And The Anti–Siphon Vent Shall Be Flushed To Ensure It Is Clear.

SNOUT/HOOD OIL WATER DEBRIS SEPARATOR

Not To Scale



NOTES:

Installation:
Silt Fence Is Not Recommended For Use As A Diversion And Should Not Be Used Across A Stream, Channel, Ditch, Swale, Or Anywhere That Concentrated Flow Is Anticipated.

Along The Entire Fence Line, Dig An 8–Inch Deep Flat Bottomed Or V–Shaped Trench. Place Fence According To Manufacturer's Recommendations.

Maintenance:
Inspect The Silt Fence Weekly And After Each½" Rainfall Event.

If Fence Fabric Tears, Starts To Decompose, Or In Any Way Becomes Ineffective, Replace The Affected Portion Immediately.

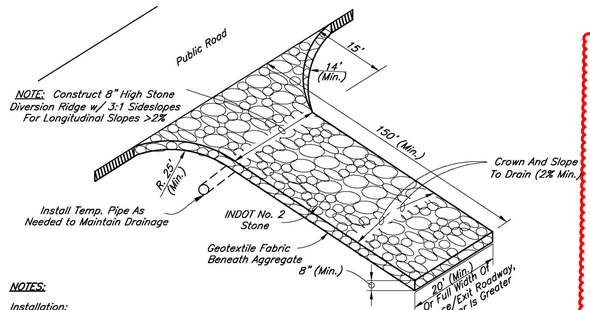
Remove Deposited Sediment When It Reaches Half The Height Of The Fence At Its Lowest Point Or Is Causing The Fabric To Bulge.

Take Care To Avoid Undermining The Fence During Clean Out.

After The Contributing Drainage Area Has Been Stabilized, Remove The Fence And Sediment Deposits, Bring The Disturbed Area To Grade, And Stabilize.

SILT FENCE BEHIND CURB

Not To Scale



NOTES:

Installation:
Avoid Locating On Steep Slopes Or At Curves In Public Roads.

Remove All Vegetation And Other Objectionable Material From The Foundation Area, And Grade The Foundation And Crown For Positive Drainage.

If Longitudinal Slope Is In Excess Of 2%, Construct A Water Bar (Ridge) About 15 Feet From The Entrance To Divert Runoff Away Form The Road (See Detail Above).

Install Pipe Under The Pad (If Needed) To Maintain Proper Public Road Drainage.

If Wet Conditions Are Anticipated, Place Geotextile Fabric On The Graded Foundation To Improve Stability.

Place Aggregate To Dimensions And Grade Shown On The Erosion Control Plan, Leaving The Surface Smooth And Sloped For Drainage.

Top–dress The Drive With Washed Aggregate (INDOT Compacted Aggregate No. 53).

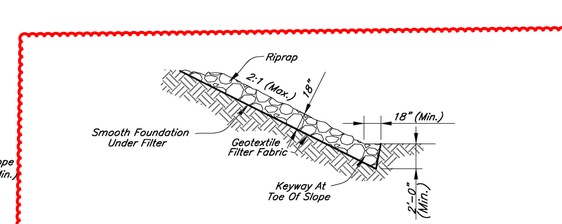
Divert All Surface Runoff And Drainage From The Stone Pad To A Sediment Trap Or Basin.

Maintenance:
Inspect Daily And After Each Storm Event Or Heavy Use.

Reshape Pad And Topdress As Needed For Drainage And Runoff Control.
Immediately Remove Mud And Sediment Tracked Or Washed Onto Public Roads By Brushing Or Sweeping. Flushing Should Only Be Used If The Water Is Conveyed Into A Sediment Trap Or Basin.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

Not To Scale



NOTES:

Installation:
Excavate Only Deep Enough For Both Filter And Riprap. Compact Any Fill Material To The Density Of The Surrounding Undisturbed Soil.

Cut A Keyway In Stable Material At The Base Of The Slope To Reinforce The Toe. Keyway Depth Should Be 1~8 Times The Design Thickness Of The Riprap, And Should Extend A Horizontal Distance Equal To The Design Thickness.

Place Geotextile Fabric On The Smoothed Foundation, Overlapping The Edges 12 Inches Minimum. Secure With Anchor Pins Spaced Every 3 Feet Along The Overlap.

Immediately After Installing The Filter, Add The Riprap To Full Thickness In One Operation. Do Not Dump Through Chutes Or Use Any Method That Causes Segregation Of Rock Sizes, Or That Will Dislodge Or Damage The Underlying Filter Material.

If Fabric Is Damaged, Remove The Riprap And Repair By Adding Another Layer Of Fabric, Overlapping The Damaged Area By 12 Inches.

Place Smaller Rock In Voids To Form A Dense, Uniform, Well Graded Mass. Blend The Rock Surface Smoothly With The Surrounding Area To Eliminate Protrusions Or Over Falls.

Maintenance:
Inspect Periodically For Displaced Rock Material, Slumping And Erosion At Edges, Especially Downstream Or Downslope.

RIPRAP

Not To Scale

REVISIONS		
Rev. No.	Description	Date

JOHN G. LIGHTNER IV REGISTERED No. PE11500016 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	01/01/2022 DATE
APPROVED	UTILITIES MANAGER	01/01/2022 DATE
APPROVED	WATER/WASTEWATER OPERATIONS MANAGER	01/01/2022 DATE

CITY OF LEBANON

EROSION CONTROL MEASURES

SHEET 19 OF 23

Meristem

Where New Growth Happens

NW of State Road 39 and W County Road 300 N

Boone County, IN

± 146 acres

Water Resources Delineation Report

March 31st, 2023

Prepared for:

Gradison Land Development
Indianapolis, IN

Prepared by:

Meristem, LLC
Avon, Indiana

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1.0 INTRODUCTION

1.1 Introduction

The Study Area is located within Section 13, Township 19 North, and Range 1 West in Center Township, Boone County, Indiana, north of the City of Lebanon (see Appendix A, Figure 1). The Study Area was delineated by Meristem on March 21st, 2023. There was one (1) 2.716-acre forested wetland and one (1) 0.380-acre emergent wetland identified within the Study Area during the investigation. Additionally, there was one (1) intermittent stream (totaling 2,683 LF) identified within the Study Area during the investigation. The forested wetland appears to be isolated and lacks any significant nexus (SNE) with traditionally navigable waters (TNWs), and it should not be considered a "Water of the United States" (WOTUS); therefore, it is outside of the jurisdictional scope of the U.S. Army Corps of Engineers (USACE). All other water resources (the emergent wetland and intermittent stream) appear to have significant nexuses (SNEs) to TNWs and therefore may be considered WOTUS, jurisdictional under the USACE.

1.2 Project Area Description

1.2.1 General Land Use

The Study Area is predominantly agricultural with a patch of forested wetland area along the western boundary, and an intermittent stream channel and associated emergent wetland along the eastern boundary. Adjacent land use in all directions appears to consist predominantly of agricultural land with some residential land use as well. The Study Area is bounded by State Road 39 to the east and by W County Road 300 N to the south. A CSX railroad track runs along the Study Area's western boundary.

1.2.2 National Wetland Inventory Mapped Wetlands

The U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) map was reviewed to determine the presence of any NWI polygons within or adjacent to the Study Area. There were two (2) NWI wetland polygons identified within the Study Area (see Appendix A, Figure 2). Table 1 on the following page outlines the NWI polygons located within the Study Area and their associated water resources.

Table 1: NWI Polygons within Study Area

NWI Polygon	*Description*	*Number within Study Area*	*Associated Water Resources*
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded	1	Stream 1, Wetland B
PEM1C	Palustrine, Emergent, Persistent, Seasonally Flooded	1	Wetland A

NWI maps are published by the United States Fish and Wildlife Service (USFWS) to identify potential wetlands and their characteristics. Wetlands published through this service are not always confirmed through field sampling and are not always accurate in identifying water resources.

1.2.3 Topography and Drainage

Topography within the Study Area varies significantly. Water appears to drain into the channel of the stream along the northern and eastern boundaries, and into the basin of Wetland A along the southwestern boundary. Topography within the Study Area varies between 921 and 947 feet above sea level (ASL). The lowest points of the Study Area are located within Wetland A to the west and along Stream 1 in the northeast region. The highest point in the Study Area is located within the agricultural field, in the south-central region (see Appendix A, Figure 3).

1.2.4 Soil Associations and Series Types

The U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey identifies 5 Soil Mapping Unit types throughout the Study Area. The site is predominantly a mosaic of Cyclone (CxdA),Treaty (ThrA), and Udorthents (Uby) soil units in the lower-elevation areas, and Crosby (CudA) and Miami (MnpB2) soil units in the higher-elevation areas (see Appendix A, Figure 4).

Hydric soils are soils that have formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper layer of the soil. Table 2 on the following page outlines the soil mapping unit types identified within the Study Area. None of the soil mapping unit types identified within the Study Area are considered hydric.

Table 2: Soil Mapping Units Within the Study Area

Symbol	***Description***	***Hydric***
CudA	Crosby silt loam, fine-loamy subsoil, 0 to 2 percent slopes	NO
CxdA	Cyclone silty clay loam, 0 to 2 percent slopes	YES
MnpB2	Miami silt loam, 2 to 6 percent slopes, eroded	NO
ThrA	Treaty silty clay loam, 0 to 1 percent slopes	YES
UbY	Udorthents, loamy	NO

1.2.5 Environmental Protection Agency Level IV Ecoregion

The Study Area is located within the Loamy High Lime Till Plains (55b) Level IV Ecoregion designated by the U.S. Environmental Protection Agency (EPA). This ecoregion historically contained nearly-level topography and soils developed from loamy, limy, glacial deposits of Wisconsinan age, with higher fertility and better natural drainage than surrounding Eastern Corn Belt Plains Level IV ecoregions. Much of the original land use has been converted to agriculture.

2.0 REGULATORY BACKGROUND

2.1 Regulatory Agencies

Agencies that regulate impacts to the nation's surface water resources within Indiana include USACE and the Indiana Department of Environmental Management (IDEM). Jurisdictional waters of the U.S. are protected under Sections 401 and 404 of the Clean Water Act (CWA) and Executive Order 11990 (Protection of Wetlands). USACE has the primary regulatory authority for enforcing Section 404 requirements for waters of the U.S., including wetlands. The Indiana Department of Natural Resources (IDNR) also requires permits for impacts to wetlands and waterways within regulated floodways.

2.2 Definitions

2.2.1 Federal

Waters of the U.S. are defined by the USACE, 33 Code of Federal Regulations (CFR) 328.3

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) which are used or could be used for industrial purpose by industries in interstate commerce;
- All impoundments of waters otherwise defined as waters of the U.S. under the definition;
- Tributaries of waters of the U.S. identified above;
- The territorial seas;
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified above. The term adjacent means bordering, contiguous, or neighboring. Wetlands separated from other waters of the U.S. by manmade dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands."

Wetlands are a category of waters of the U.S. and are defined by the USACE as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3, USACE; Section 8b). Typical wetlands include bogs, marshes, swamps, and other similar areas. However, temporarily or seasonally flooded depressions that receive overland storm water runoff or overbank floodwaters can meet the criteria for wetlands. This is often due to the prevalence of clay soils that hold water or have a high water table that causes soils to remain saturated for long periods.

Based upon current guidance by the Environmental Protection Agency (EPA), only those wetlands that are adjacent to traditional navigable waters or wetlands that directly abut to non-navigable tributaries having a seasonal (3-month minimum) flow are now considered jurisdictional under the CWA (June 5, 2007 EPA Memo regarding Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States) Following are key points from the EPA memo and are at times referred to as "Rapanos Guidance".

"The agencies will assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters
- Significant nexus includes consideration of hydrologic and ecologic factors"

The EPA finalized a New Rule to define Waters of the U.S. (WOTUS) on December 30, 2022. This new definition became effective March 20, 2023. Formal guidance regarding this new definition is forthcoming and may impact the professional opinion regarding the jurisdictional call of the water resources within the Study Area.

2.2.2 State

"Waters" within the State of Indiana are defined as surface and underground waterbodies; natural and artificial; public or private, which are partially or wholly within, flow through or border upon Indiana. The term includes all waters of the United States, as defined in Section 502(7) of the federal Clean Water Act (33 U.S.C. 1362(7)), that are located in Indiana. (*As added by P.L.1-1996, SEC.1. Amended by P.L.183-2002, SEC.1; P.L.282-2003, SEC.31; P.L.52-2004, SEC.4.)*

Although not specifically mentioned within the Indiana Code's definition of state "waters", Indiana "waters" do include and are not limited to streams and wetlands (both isolated and non-isolated). State of Indiana "waters" do not include exempt isolated wetlands, private ponds, or off-stream ponds, reservoirs, wetlands, or other facilities ***built for*** reduction or control of pollution or cooling of water before discharge. (IC 13-11-2-265). The State of Indiana also excludes isolated ephemeral streams from their jurisdiction (SEA No. 389: Sect. 7. IC 13-18-22-1, as amended by P.L.166-2020).

The State of Indiana relies on the Corps' (USACE) decision regarding wetland determinations and delineations including whether or not a wetland is isolated or non-isolated.

3.0 DETERMINATION OF WATERS OF THE U.S.

3.1 Methods

3.1.1 Wetlands

The water resources delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the appropriate regional supplement. The presence of potentially jurisdictional wetlands is determined by the positive indication of three criteria: the dominance of hydrophytic (wetland) vegetation, one positive hydric soil indicator, and a minimum of one primary or two secondary indicators for hydrology. A "Wetland Determination Form" was completed for each survey point to record the presence or absence of each criterion.

Wetlands were delineated using a Trimble TDC-600 and/or Trimble R1, and mapped using ArcMap 10.8.2. The final determination on the presence of and jurisdiction of wetlands and "waters of the U.S." is determined by the USACE.

3.2.3.3 Hydrophytic Vegetation

Areal coverage of individual herb, shrub, tree, and vine species were assessed and recorded at each survey point to determine dominance. Plant species are assigned an indicator status based on probability of occurring in wetland conditions regionally. The indicator status of each plant is determined by USACE and is published on the National Wetland Plant List (2020). Definitions of the five primary indicator statuses are:

Obligate (OBL): Occur almost always under natural conditions in wetlands (estimated > 99% probability of occurrence).

Facultative Wetland (FACW): Usually occur in wetlands but occasionally found in non-wetlands (estimated 67% - 99% probability of occurrence).

Facultative (FAC). Equally likely to occur in wetlands and non-wetlands (estimated 34% - 66% probability of occurrence).

Facultative Upland (FACU): Occasionally occur in wetlands, but usually occur in non-wetlands (estimated 1% - 33% probability of occurrence).

Upland (UPL). Occur almost always under natural conditions in non-wetlands in the region specified. (estimated < 1% probability of occurrence).

3.1.1.2 Hydric Soil

Soil samples were taken in areas believed to be potential wetlands such as areas that are indicated as wetlands on the National Wetland Inventory maps; areas that exhibited wetland flora or had signs of hydrology. These soil samples were taken to determine the presence of hydric soils by examining the hue, value, and chroma of the soil using a Munsell color chart. An upland soil sample was also taken near the edge of the wetlands to determine the boundary and surrounding conditions for the wetland.

3.1.1.3 Wetland Hydrology

Evidence of hydrology can often be associated when the soil sample is dug. Saturated soils within the upper 12 inches is documented in addition to the presence of the water table within 12 inches of the surface. Other signs of hydrology may include but are not limited to drainage patterns, surface water, rafted debris, and crayfish chimneys.

3.1.2 Streams

Potential boundaries for streams were delineated in the field at the ordinary high-water mark (OHWM). The OHWM is the line on the shore or bank established by flowing and/or standing water, marked by characteristics such as a clear, natural line impressed on the bank, erosion shelving, changes in the character of soil, destruction of terrestrial vegetation, presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas [(33 CFR Part 328.3 €].

All waterways with an OHWM were identified as perennial, intermittent, or ephemeral. Determination was made based off field observations, the antecedent precipitation tool (APT) developed by USACE, National Hydrography Dataset (NHD), and other available resources.

3.1.3 Ponds

Water bodies such as lakes, ponds, dammed streams, retention ponds, borrow pits, and similar open water systems are defined by the OHWM near the shoreline or the edge of its littoral fringe.

Ponds lacking vegetation were considered open water systems during the delineation. Ponds that are human made are not considered jurisdictional by USACE.

3.2 Delineation Results

Table 3 summarizes the characteristics of the water resources delineated.

Table 3: Waterbodies Located Within the Study Area

Field Name	Water Resource Type	Acreage within Study Area	Linear Feet within Study Area	OHWM Width (feet)	OHWM Depth (inches)	USACE-Jurisdictional	IDEM-Jurisdictional
Wetland A	PFO	2.716	N/A	N/A	N/A	NO	YES
Wetland B	PEM	0.380	N/A	N/A	N/A	YES	YES
Stream 1	INT	N/A	2,683	4	30	YES	YES
Totals:	-	3.096	2,683	-	-	-	-

1. PEM = Emergent; PSS = Scrub-Shrub; PFO = Forested; PER = Perennial; INT = Intermittent; EPH = Ephemeral; PUB = Unconsolidated Bottom

3.2.1 Wetlands

A 2021 aerial image of the Study Area is included in Appendix A, Figure 5. There was one forested wetland and one emergent wetland identified within the Study Area. Multiple representative data points were taken in areas most likely to contain wetland hydrology, soils, and vegetation (see Appendix B).

Wetland A

Wetland A is a 2.716-acre emergent wetland located within the western region of the Study Area. Wetland A appears to be isolated and lack a significant nexus (SNE) with traditionally navigable waterways (TNWs), and therefore should not be considered a "water of the United States" (WOTUS) and should be deemed outside of the jurisdictional scope of the USACE.

- *Vegetation:* Wetland A contained dominant tree species consisting of eastern cottonwood (*Populus deltoides,* FAC), pin oak (*Quercus palustris,* FACW), and sycamore (*Platanus occidentalis,* FACW). Dominant shrub/sapling species included eastern cottonwood (FAC), green ash (*Fraxinus pennsylvanica,* FACW), red maple (*Acer rubrum,* FAC), rough-leaved dogwood (*Cornus drummondii,* FAC), and Amur honeysuckle (*Lonicera maackii,* UPL). Dominant herbaceous species consisted of sedge (*Carex* sp., FACW), white avens (*Geum canadense,* FAC), and Canada goldenrod (*Solidago canadensis,* FACU).

  Upland areas adjacent to Wetland A contained dominant tree species including eastern cottonwood (FAC) and black walnut (*Juglans nigra,* FACU). Dominant sapling/shrub species included Amur honeysuckle (UPL), black raspberry (*Rubus occidentalis,* UPL), rough-leaved dogwood (FAC), green ash (FACW), and black walnut (FACU). Dominant herbaceous species consisted of purple wintercreeper (*Euonymus fortunei,* UPL), common greenbrier (*Smilax rotundifolia,* FAC), bushy bluestem (*Andropogon virginicus,* FACU), tall fescue (*Schedonorus arundinaceus,* FACU), red fescue (*Festuca rubra,* FACU), and planted soybeans (*Glycine max,* UPL). Dominant woody vine species consisted of Japanese honeysuckle (*Lonicera japonica,* FACU) and common greenbrier (FAC).

- *Soils*: Wetland A met the Depleted Below Dark Surface (A11) and Depleted Matrix (F3) hydric soil criteria.
- *Hydrology*: The primary hydrology source for this wetland system appeared to be overland sheet flow and precipitation, with the potential for groundwater recharge. Primary hydrology indicators observed included Surface Water (A1), High Water Table (A2), Saturation (A3), Water Marks (B1), Water-Stained Leaves (B9), and Oxidized Rhizospheres on Living Roots (C3). Secondary hydrology indicators observed included Geomorphic Position (D2) and FAC-Neutral Test (D5).

Wetland B

Wetland B is a 0.380-acre emergent wetland located along the stream channel of Stream 1 along the eastern side of the Study Area. Wetland B appears to have a SNE with TNWs (via Stream 1), and therefore should be considered a WOTUS under the jurisdictional scope of the USACE and IDEM.

- *Vegetation:* Wetland B contained dominant tree species consisting of American elm (FACW). Dominant herbaceous species included reed canary grass (*Phalaris arundinacea,* FACW).

  Upland areas adjacent to Wetland B contained herbaceous species consisting of planted corn (Zea mays, UPL) and soybean (UPL).
- *Soils*: Wetland B met the Redox Dark Surface (F6) hydric soil criteria.
- *Hydrology*: The primary hydrology source for this wetland system appeared to be overland flow and groundwater recharge from Stream 1, as well as input from precipitation. Secondary hydrology indicators observed included Geomorphic Position (D2) and the FAC-Neutral Test (D5).

3.2.2 Streams

Intermittent Streams

One (1) intermittent stream (Stream 1) was identified within the Study Area during the investigation. Stream 1 enters the Study Area through a culvert along the eastern boundary and runs north-northwest for 2,683 LF through the Study Area before leaving the site in the northeastern corner. The stream continues to flow northwestward before draining into the perennial Spring Creek offsite. Stream 1 has an average OHWM width of 4 feet and an average OHWM depth of 30 inches with a substrate predominantly comprised of gravel and sand. Due to its connection to Spring Creek downstream, Stream 1 should be considered a WOTUS and should be under USACE jurisdiction.

3.2.3 Ponds

No ponds were identified or delineated within the Study Area boundary.

4.0 CONCLUSION

4.1 Conclusion

The Study Area located in Boone County was delineated by Meristem on March 21st, 2023. There was one (1) 2.716-acre forested wetland and one (1) 0.380-acre emergent wetland identified within the Study Area during the investigation. Additionally, there was one (1) intermittent stream (totaling 2,683 LF) identified within the Study Area during the investigation. The forested wetland appears to be isolated and lacks any SNE with TNWs, and it should not be considered a WOTUS; therefore, it is outside of the jurisdictional scope USACE. All other water resources (the emergent wetland and intermittent stream) appear to have SNEs to TNWs and therefore may be considered WOTUS, jurisdictional under the USACE.

This report is based on Meristem's best professional opinion and is limited to the time frame when field work was conducted. Meristem is not responsible for the interpretation or use by others of conclusions described in this report. The U.S. Army Corps of Engineers (USACE) and the Indiana Department of Environmental Management (IDEM) have final determination of wetland boundaries and connectivity to WOTUS.

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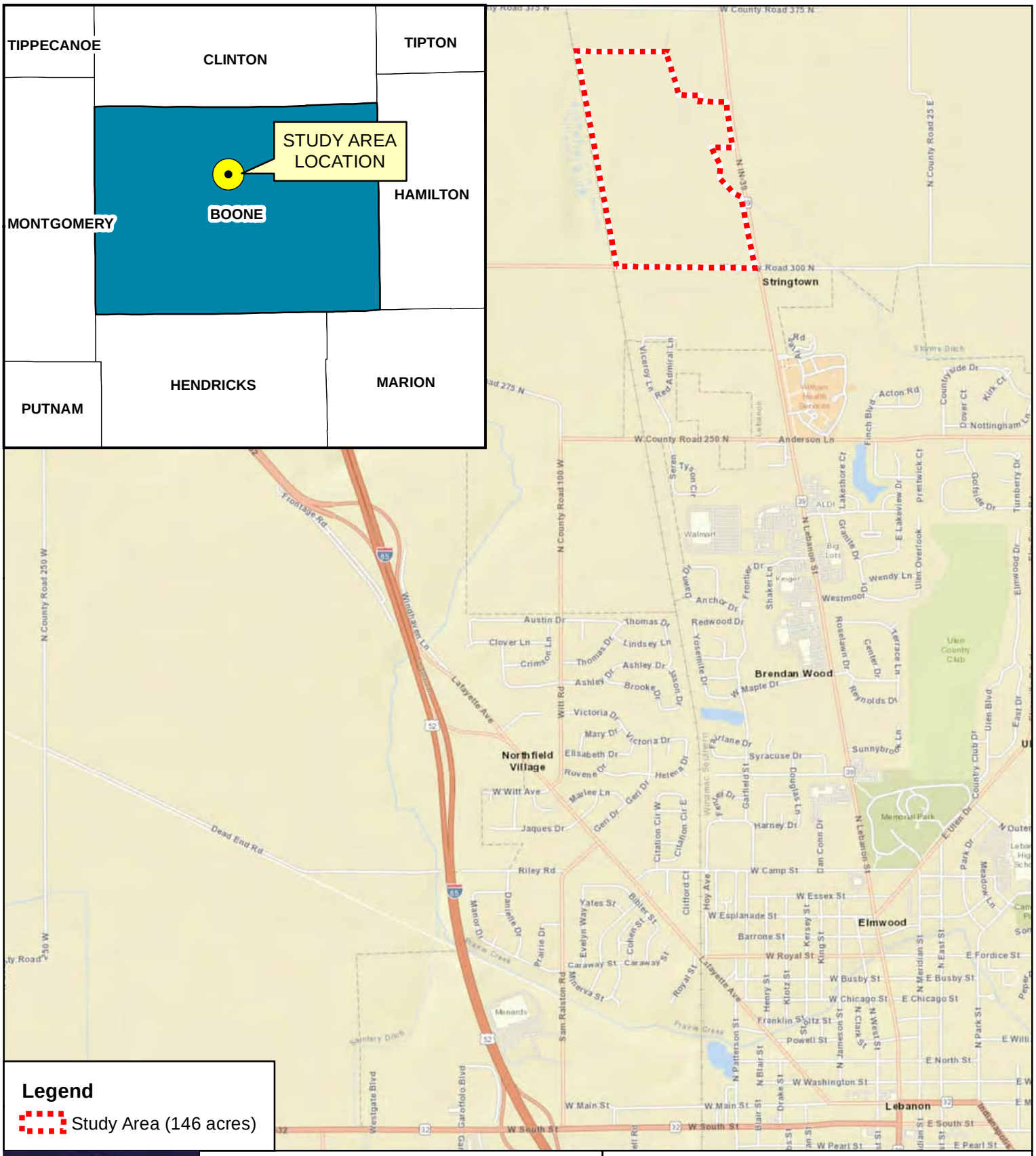
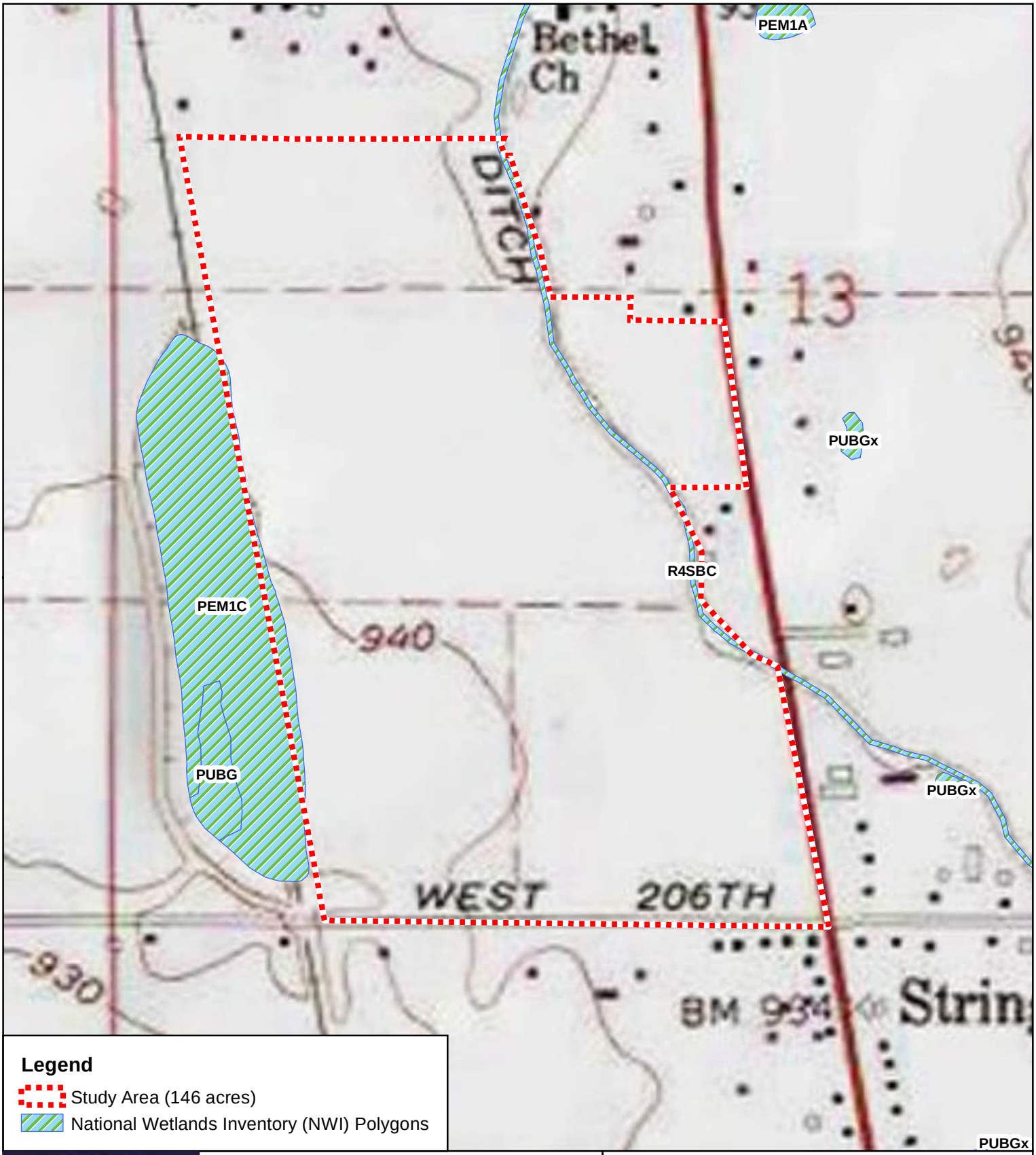


Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Appendix A, Figure 1:
Study Area Location Map

NW of SR 39 and CR 300 N
Center Township
Boone County, Indiana



Legend

Study Area (146 acres)

National Wetlands Inventory (NWI) Polygons

N

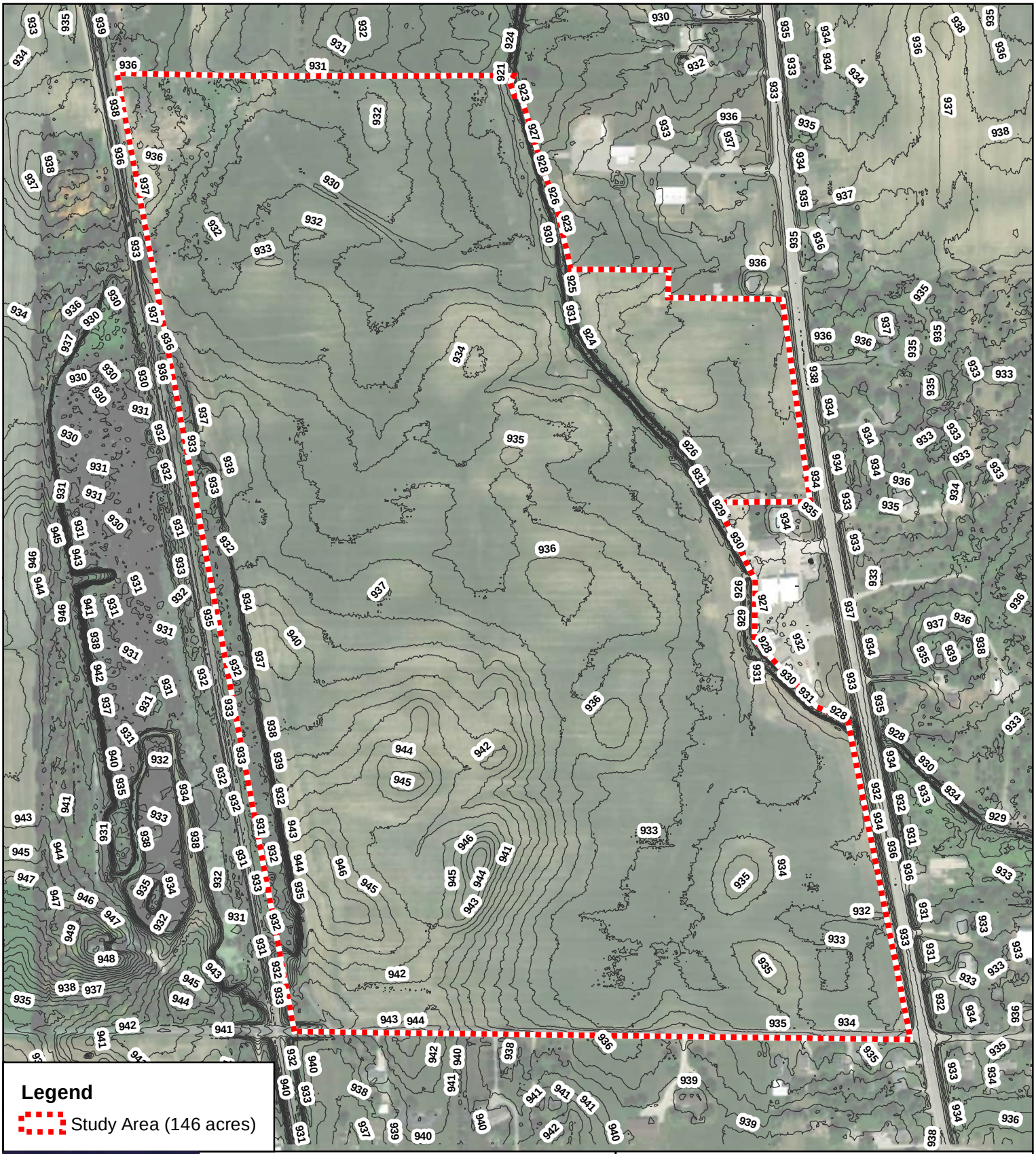
0 275 550 1,100 Feet

1 in = 550 feet

National Geographic Society, i-cubed. 2013.
U.S. Fish and Wildlife Service, 2005. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands/

Appendix A, Figure 2:
Study Area on NWI & Topographic Map

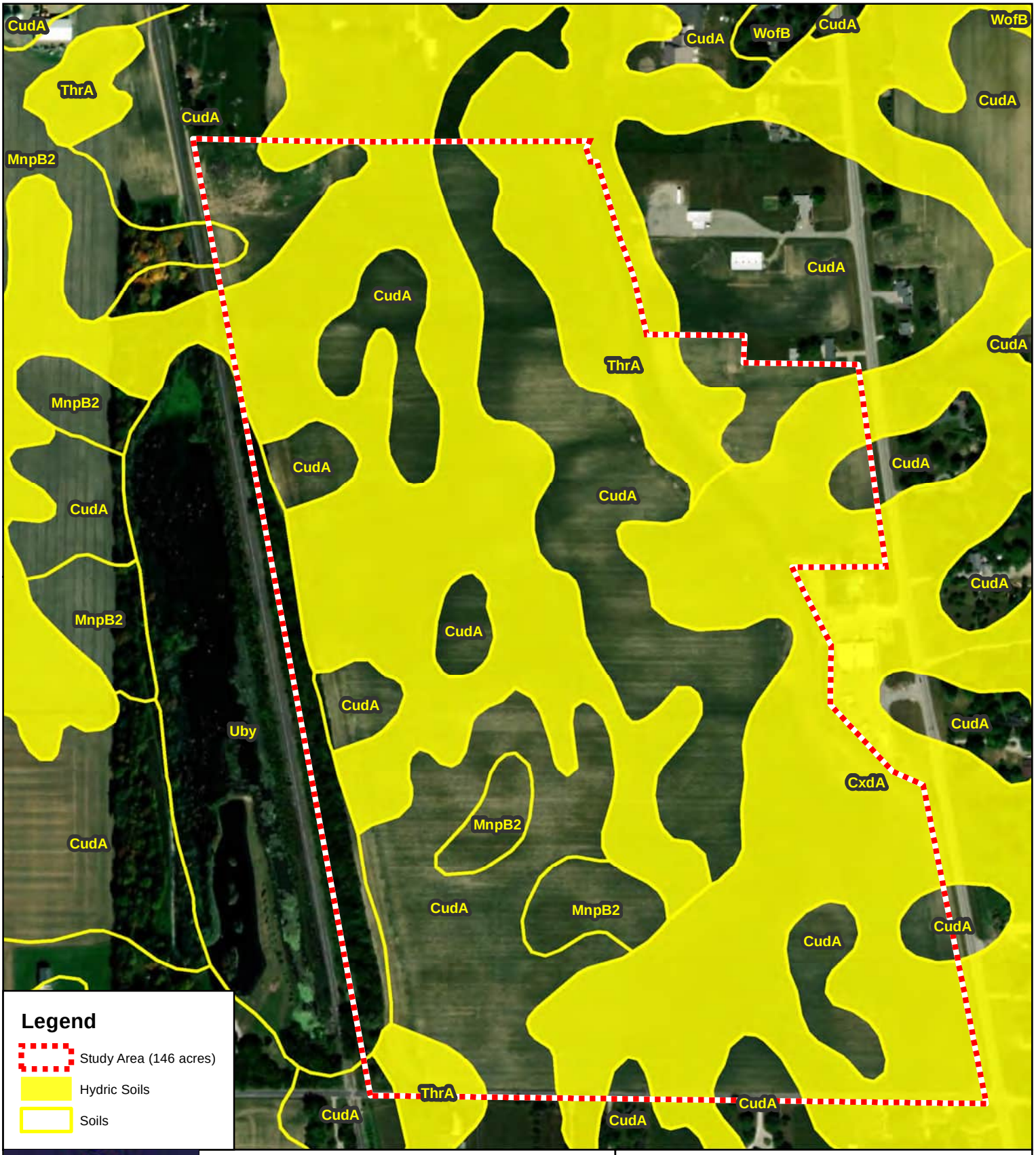
NW of SR 39 and CR 300 N
Center Township
Boone County, Indiana



Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.; Esri, Redlands CA
Imagery Date: 2021
Contours from U.S. Geological Survey 2012 Digital Elevation Model

Appendix A, Figure 3:
Study Area on Elevation Map

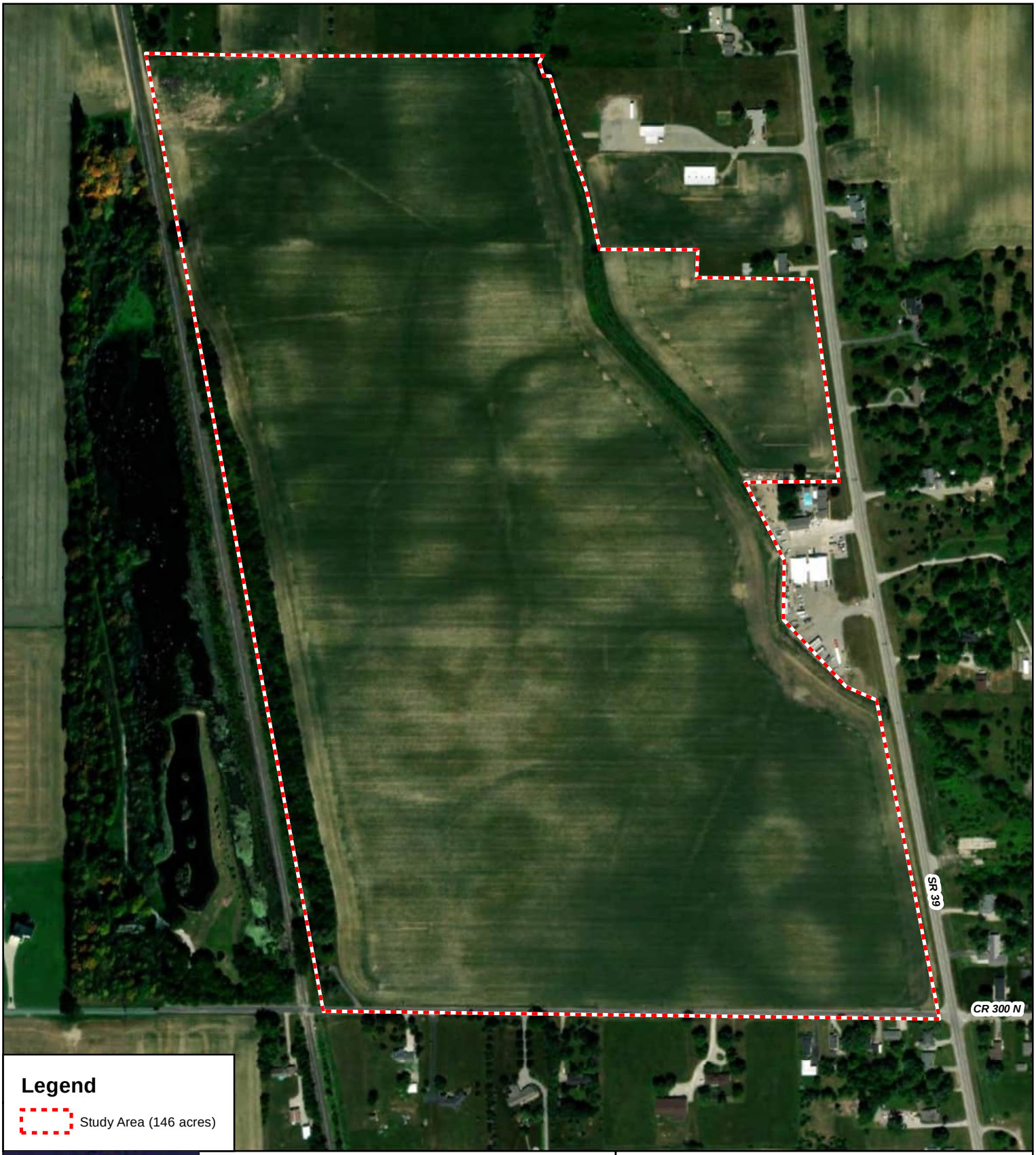
NW of SR 39 and CR 300 N
Center Township
Boone County, Indiana



Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/.
Imagery Date: 2021

Appendix A, Figure 4:
Study Area on Boone County Soil Map

NW of SR 39 and CR 300 N
Center Township
Boone County, Indiana



Legend

Study Area (146 acres)

N

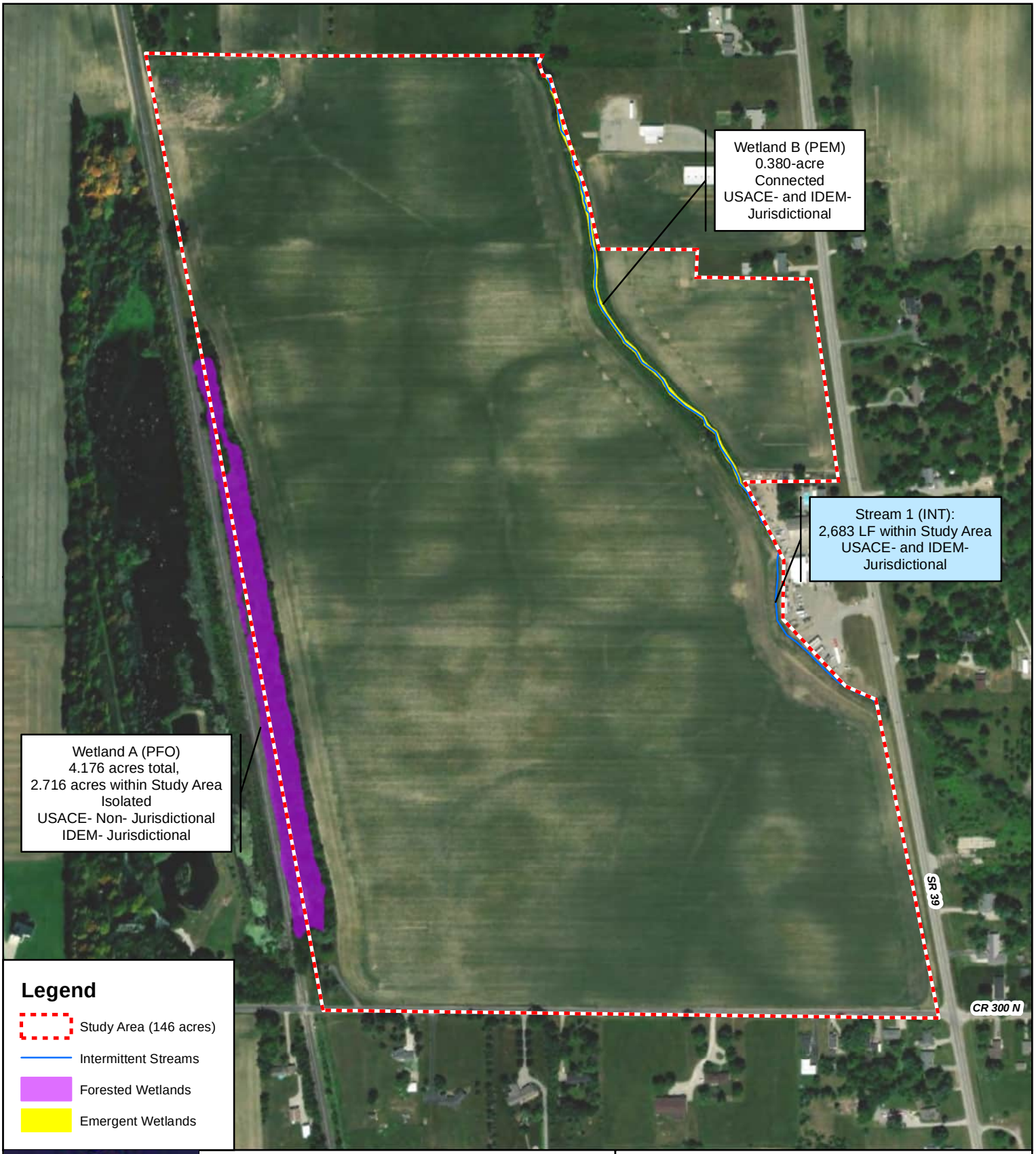
0 225 450 900 Feet

1 in = 450 feet

Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/.
Imagery Date: 2021

Appendix A, Figure 5:
Study Area on Aerial Photograph (2021)

NW of SR 39 and CR 300 N
Center Township
Boone County, Indiana



N

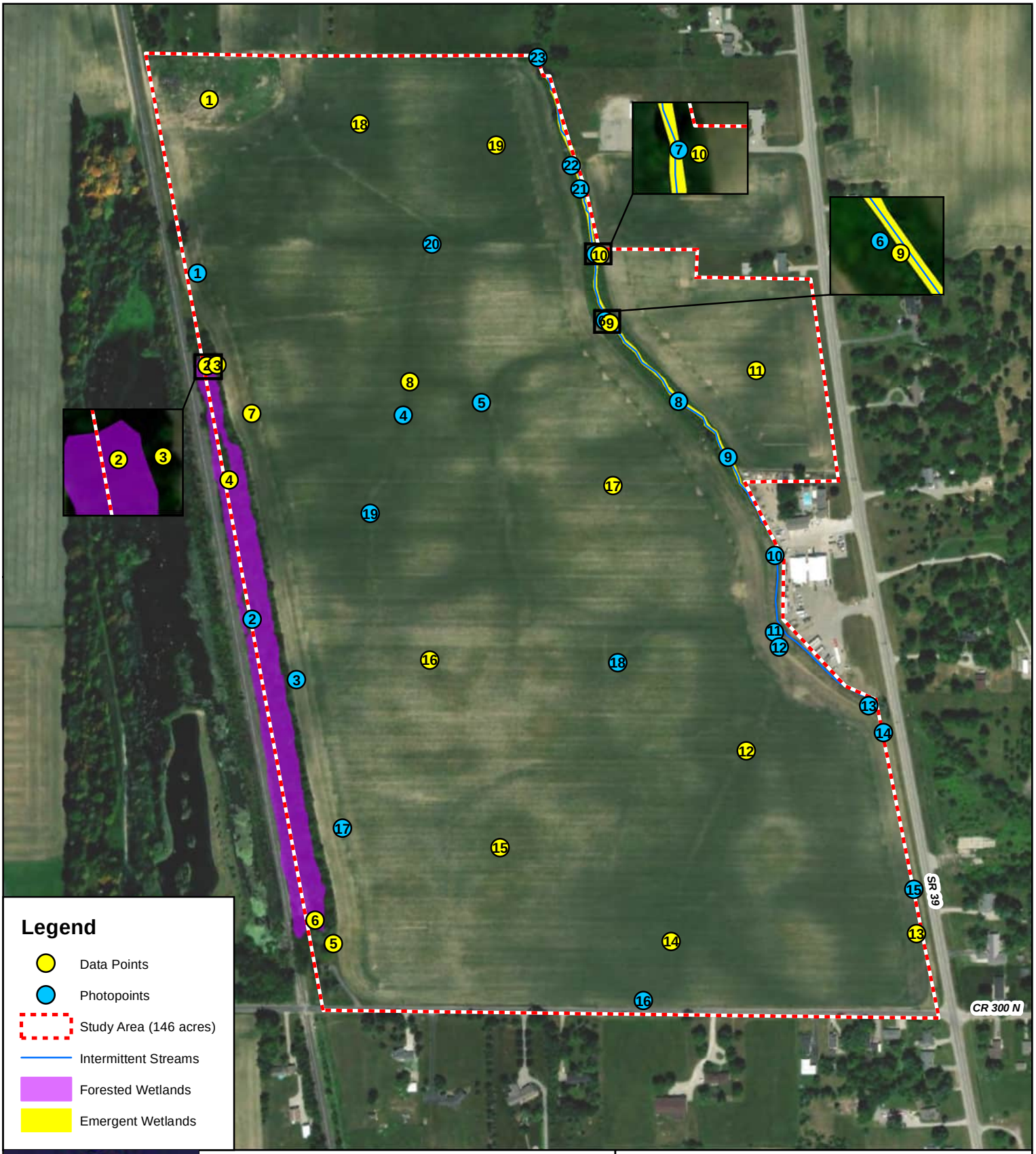
0 225 450 900 Feet

1 in = 450 feet

Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/.
Imagery Date: 2021

Appendix A, Figure 6:
Water Resources Delineation Map

NW of SR 39 and CR 300 N
Center Township
Boone County, Indiana



N

0 225 450 900 Feet

1 in = 450 feet

Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/.
Imagery Date: 2021

Appendix A, Figure 7:
Photo and Data Point Locations Map

NW of SR 39 and CR 300 N
Center Township
Boone County, Indiana

APPENDIX B: Wetland Determination Data Forms (Midwest Region)

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: NW of SR 39 & CR 300 N City/County: Lebanon, Boone County Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development State: IN Sampling Point: 1

Investigator(s): Bailey Duncan, Kat Pain Section, Township, Range: S13, T19N, R1W

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

Slope (%): 0% Lat: 40.091586 Long: -86.485701 Datum: NAD83

Soil Map Unit Name: Crosby silt loam, fine-loamy subsoil, 0 to 2 percent slopes NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Zea mays*	80%	Yes	UPL
2. *Setaria faberi*	2%	No	FACU
3. *Panicum virgatum*	1%	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
83% = 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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	1%	x3 =	0.03
FACU species	2%	x4 =	0.08
UPL species	80%	x5 =	4
Column Totals:	0.83 (A)		4.11 (B)

Prevalence Index = B/A = 4.95

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.)

SOIL

Sampling Point: 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
0-18"	10YR 4/2	70	7.5YR 5/6	30	C	PL	Silty clay loam	

[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:

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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 2

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): Forested flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.089069 | Long: -86.485756 | Datum: NAD83

Soil Map Unit Name: Udorthents, loamy | NWI classification: PEM1C

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

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

Are Vegetation N, Soil N, or Hydrology N 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 X	No ____	**within a Wetland?**	Yes X No ____
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. *Populus deltoides*	40%	Yes	FAC
2. *Celtis occidentalis*	15%	No	FAC
3. *Quercus palustris*	20%	Yes	FACW
4. *Fraxinus pennsylvanica*	10%	No	FACW
5.			
	85%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Fraxinus pennsylvanica*	10%	Yes	FACW
2. *Acer rubrum*	10%	Yes	FAC
3. *Cornus drummondii*	15%	Yes	FAC
4. *Lonicera maackii*	10%	Yes	UPL
5.			
	45%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Carex sp.*	15%	Yes	FACW
2. *Taraxacum officinale*	1%	No	FACU
3. *Ranunculus abortivus*	2%	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	18%	= 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: 6 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 86% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species	57%	x2 =	1.14
FAC species	80%	x3 =	2.4
FACU species	1%	x4 =	0.04
UPL species	10%	x5 =	0.5
Column Totals:	1.48 (A)		4.08 (B)

Prevalence Index = B/A = 2.76

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: 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
0-6"	10YR 3/2	100					Silty clay loam	
6-20"	10YR 4/1	97	7.5YR 5/6	3	C	M	Silty clay loam	

[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)
- X 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:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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)
- X 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 X No ___ Depth (inches): .5 inches

Water Table Present? Yes X No ___ Depth (inches): 3 inches

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

(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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 3

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

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

Slope (%): 5% | Lat: 40.089073 | Long: -86.485627 | Datum: NAD83

Soil Map Unit Name: Crosby silt loam, fine-loamy subsoil, 0 to 2 percent slopes | NWI classification: None

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	30%	Yes	FAC
2. *Celtis occidentalis*	3%	No	FAC
3. *Quercus palustris*	5%	No	FACW
4.			
5.			
	38%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Juglans nigra*	15%	Yes	FACU
2. *Lonicera maackii*	40%	Yes	UPL
3.			
4.			
5.			
	55%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Euonymus fortunei*	5%	Yes	N.I.
2. *Smilax rotundifolia*	10%	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	15%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *Smilax rotundifolia*	20%	Yes	FAC
2. *Lonicera japonica*	25%	Yes	FACU
	45%	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 43% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species	5%	x2 =	0.1
FAC species	63%	x3 =	1.89
FACU species	40%	x4 =	1.6
UPL species	40%	x5 =	2
Column Totals:	1.48 (A)		5.59 (B)

Prevalence Index = B/A = 3.78

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.)

SOIL

Sampling Point: 3

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

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

[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)

- ___ 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):	None
Water Table Present?	Yes ___ No X	Depth (inches):	None
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches):	None

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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone Coounty | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 4

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): Fallow flat | Local relief (concave, convex, none): Concave

Slope (%): 0% | Lat: 40.087986 | Long: -86.485488 | Datum: NAD83

Soil Map Unit Name: Udorthents, loamy | 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 N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation N, Soil N, or Hydrology N 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 X	No ____	**within a Wetland?**	Yes X No ____
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.			
2.			
3.			
4.			
5.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Cornus drummondii*	15%	Yes	FAC
2. *Fraxinus pennsylvanica*	15%	Yes	FACW
3.			
4.			
5.			
	30%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Andropogon virginicus*	70%	Yes	FACU
2. *Pycnanthemum tenuifolium*	10%	No	FAC
3. *Carex sp.*	5%	No	FAC
4. *Fragaria virginiana*	3%	No	FACU
5. *Daucus carota*	2%	No	UPL
6. *Symphyotrichum pilosum*	2%	No	FACU
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	92%	= 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: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species	15%	x2 =	0.3
FAC species	30%	x3 =	0.9
FACU species	75%	x4 =	3
UPL species	2%	x5 =	0.1
Column Totals:	1.22 (A)		4.3 (B)

Prevalence Index = B/A = 3.52

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: 4

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					Silt loam	
4-8"	10YR 5/2	95	2.5YR 3/6	5	C	M	Sandy loam	
8-18"	10YR 5/3	95	2.5YR 3/6	5	C	M	Sandy loam	

[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:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ 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):	None
Water Table Present?	Yes X No ___	Depth (inches):	12 inches
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	Surface

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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 5

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.083574 | Long: -86.484236 | Datum: NAD83

Soil Map Unit Name: Udorthents, loamy | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juglans nigra*	15%	Yes	FACU
2.			
3.			
4.			
5.			
	15% = Total Cover		

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Rubus occidentalis*	5%	Yes	UPL
2. *Lonicera maackii*	15%	Yes	UPL
3.			
4.			
5.			
	20% = Total Cover		

Herb Stratum (Plot size: 5' radius)			
1. *Schedonorus arundinaceus*	20%	Yes	FACU
2. *Agrostis gigantea*	15%	No	FACW
3. *Carex* sp.	5%	No	FACW
4. *Taraxacum officinale*	2%	No	FACU
5. *Festuca rubra*	40%	Yes	FACU
6. *Symphyotrichum pilosum*	15%	No	FACU
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	97% = 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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species	20%	x2 =	0.4
FAC species		x3 =	
FACU species	92%	x4 =	3.68
UPL species	20%	x5 =	1
Column Totals:	1.32 (A)		5.08 (B)

Prevalence Index = B/A = 3.85

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.)

SOIL

Sampling Point: 5

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
0-18"	10YR 4/3	100					Silty clay loam	

[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)

- ___ 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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 6

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.083798 | Long: -86.484461 | Datum: NAD83

Soil Map Unit Name: Udorthents, loamy | NWI classification: PEM1C

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

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

Are Vegetation N, Soil N, or Hydrology N 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 X	No ____	**within a Wetland?**	Yes X No ____
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. *Platanus occidentalis*	20%	Yes	FACW
2. *Quercus palustris*	20%	Yes	FACW
3. *Populus deltoides*	20%	Yes	FAC
4.			
5.			
	60%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Populus deltoides*	10%	Yes	FAC
2.			
3.			
4.			
5.			
	10%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Geum canadense*	3%	Yes	FAC
2. *Solidago canadensis*	5%	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	8%	= 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: 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	40%	x2 =	0.8
FAC species	33%	x3 =	0.99
FACU species	5%	x4 =	0.2
UPL species		x5 =	
Column Totals:	0.78 (A)		1.99 (B)

Prevalence Index = B/A = 2.55

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: 6

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 3/2	100					Silty clay loam	
4-20"	10YR 4/1	95	7.5YR 5/6	5	C	M	Silty clay loam	

[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)
- X 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:

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)
- X 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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 7

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.088604 | Long: -86.485201 | Datum: NAD83

Soil Map Unit Name: Crosby silt loam, fine-loamy subsoil, 0 to 2 percent slopes | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Glycine max*	90%	Yes	UPL
2.			
3.			
4.			
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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	90%	x5 =	4.5
Column Totals:	0.90 (A)		4.5 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: 7

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	100					Silty clay loam	

[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)

- ___ 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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 8

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.088895 | Long: -86.483247 | Datum: NAD83

Soil Map Unit Name: Treaty silty clay loam, 0 to 1 percent slopes | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Glycine max*	90%	Yes	UPL
2.			
3.			
4.			
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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	90%	x5 =	4.5
Column Totals:	0.90 (A)		4.5 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: 8

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 3/1	100					Silty clay loam	

[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)

- ___ 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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 9

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.090086 | Long: -86.480885 | Datum: NAD83

Soil Map Unit Name: Treaty silty clay loam, 0 to 1 percent slopes | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N 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 X	No ____	**within a Wetland?**	Yes X No ____
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. *Ulmus americana*	10%	Yes	FACW
2.			
3.			
4.			
5.			
	10% = Total Cover		

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

Herb Stratum (Plot size: 5' radius)			
1. *Phalaris arundinacea*	70%	Yes	FACW
2. *Asclepias syriaca*	3%	No	FACU
3. *Ambrosia trifida*	15%	No	FAC
4. *Lonicera maackii*	7%	No	UPL
5. *Smilax hispida*	3%	No	FAC
6. *Ambrosia artemisiifolia*	3%	No	FACU
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	101% = 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: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (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	80%	x2 =	1.6
FAC species	18%	x3 =	0.54
FACU species	6%	x4 =	0.24
UPL species	7%	x5 =	0.35
Column Totals:	1.11 (A)		2.73 (B)

Prevalence Index = B/A = 2.46

Hydrophytic Vegetation Indicators:

- X 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: 9

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 3/2	100					Silty Clay Loam	
5-20"	10YR 3/1	90	7.5YR 5/6	10	C	PL	Silty Clay Loam	

[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)
- X 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:

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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 10

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.089439 | Long: -86.480772 | Datum: NAD83

Soil Map Unit Name: Treaty silty clay loam, 0 to 1 percent slopes | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Glycine max*	90%	Yes	UPL
2.			
3.			
4.			
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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	90%	x5 =	4.5
Column Totals:	0.90 (A)		4.5 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: 10

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
0-7"	10YR 3/2	100					Silty clay loam	

[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)

- ___ 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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 11

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.088979 | Long: -86.47897 | Datum: NAD83

Soil Map Unit Name: Treaty silty clay loam, 0 to 1 percent slopes | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N 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 ____	No X		

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana*	5%	Yes	FACW
2. *Fraxinus pennsylvanica*	5%	Yes	FACW
3.			
4.			
5.			
	10%	= Total Cover	

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

Herb Stratum (Plot size: 5' radius)			
1. *Phalaris arundinacea*	90%	Yes	FACW
2. *Solidago canadensis*	5%	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	95%	= 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: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (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	100%	x2 =	2
FAC species		x3 =	
FACU species	5%	x4 =	0.2
UPL species		x5 =	
Column Totals:	1.05 (A)		2.2 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

- X 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: 11

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
0-16"	10YR 3/2	100					Silty Clay Loam	

[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)

- ___ 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:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 12

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.085375 | Long: -86.47912 | Datum: NAD83

Soil Map Unit Name: Cyclone silty clay loam, 0 to 2 percent slopes | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Zea mays*	95%	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
95% = 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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	95%	x5 =	4.75
Column Totals:	0.95 (A)		4.75 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: 12

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
0-16"	10YR 3/3	100					Silty Clay Loam	

[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)

- ___ 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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 13

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.083631 | Long: -86.477034 | Datum: NAD83

Soil Map Unit Name: Cyclone silty clay loam, 0 to 2 percent slopes | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Glycine max*	95%	Yes	UPL
2. *Stellaria media*	5%	No	FACU
3.			
4.			
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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species	5%	x4 =	0.2
UPL species	95%	x5 =	4.75
Column Totals:	1.00 (A)		4.95 (B)

Prevalence Index = B/A = 4.95

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.)

SOIL

Sampling Point: 13

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
0-16"	10YR 3/1	100					Silty Clay Loam	

[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)

- ___ 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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 14

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.083573 | Long: -86.480066 | Datum: NAD83

Soil Map Unit Name: Cyclone silty clay loam, 0 to 2 percent slopes | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Glycine max*	95%	Yes	UPL
2. *Lamium purpureum*	3%	No	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	98%	= 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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	98%	x5 =	4.9
Column Totals:	0.98 (A)		4.9 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: 14

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
0-16"	10YR 3/1	100					Silty Clay Loam	

[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)

- ___ 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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 15

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.084474 | Long: -86.482172 | Datum: NAD83

Soil Map Unit Name: Miami silt loam, 2 to 6 percent slopes, eroded | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Glycine max*	80%	Yes	UPL
2. *Zea mays*	10%	No	UPL
3.			
4.			
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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	90%	x5 =	4.5
Column Totals:	0.90 (A)		4.5 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: 15

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
0-18"	10YR 3/1	100					Silty Clay Loam	

[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)

- ___ 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)
- ___ 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: NW of SR 39 & CR 300 N City/County: Lebanon, Boone County Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development State: IN Sampling Point: 16

Investigator(s): Bailey Duncan, Kat Pain Section, Township, Range: S13, T19N, R1W

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

Slope (%): 0% Lat: 40.086257 Long: -86.483021 Datum: NAD83

Soil Map Unit Name: Crosby silt loam, fine-loamy subsoil, 0 to 2 percent slopes NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Glycine max*	80%	Yes	UPL
2. *Stellaria media*	5%	No	FACU
3. *Zea mays*	10%	No	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	95%	= 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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species	5%	x4 =	0.2
UPL species	90%	x5 =	4.5
Column Totals:	0.95 (A)		4.7 (B)

Prevalence Index = B/A = 4.95

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.)

SOIL

Sampling Point: 16

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
0-18"	10YR 4/3	100					Silty Clay Loam	

[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)

- ___ 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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 17

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.087898 | Long: -86.480748 | Datum: NAD83

Soil Map Unit Name: Cyclone silty clay loam, 0 to 2 percent slopes | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Glycine max*	80%	Yes	UPL
2. *Zea mays*	10%	No	UPL
3.			
4.			
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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	90%	x5 =	4.5
Column Totals:	0.90 (A)		4.5 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: 17

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
0-18"	10YR 4/3	100					Silty Clay Loam	

[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)

- ___ 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: NW of SR 39 & CR 300 N | City/County: Lebanon, Boone County | Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development | State: IN | Sampling Point: 18

Investigator(s): Bailey Duncan, Kat Pain | Section, Township, Range: S13, T19N, R1W

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none

Slope (%): 0% | Lat: 40.091345 | Long: -86.483842 | Datum: NAD83

Soil Map Unit Name: Treaty silty clay loam, 0 to 1 percent slopes | NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Glycine max*	80%	Yes	UPL
2. *Zea mays*	10%	No	UPL
3.			
4.			
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: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	90%	x5 =	4.5
Column Totals:	0.90 (A)		4.5 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: 18

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
0-9"	10YR 3/2	100					Silty Clay Loam	
9-20"	10YR 5/2	85	7.5YR 5/6	15	C	PL	Silty Clay Loam	

[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)
- X 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:

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: NW of SR 39 & CR 300 N City/County: Lebanon, Boone County Sampling Date: 3/21/2023

Applicant/Owner: Gradison Land Development State: IN Sampling Point: 19

Investigator(s): Bailey Duncan, Kat Pain Section, Township, Range: S13, T19N, R1W

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

Slope (%): 0% Lat: 40.091135 Long: -86.48216 Datum: NAD83

Soil Map Unit Name: Treaty silty clay loam, 0 to 1 percent slopes NWI classification: N/A

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

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

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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. *Zea mays*	80%	Yes	UPL
2.			
3.			
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.			
2.			
= Total Cover			

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	80%	x5 =	4
Column Totals:	0.80 (A)		4 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

____ 2-Dominance Test is >50%

____ 3-Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

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

SOIL

Sampling Point: 19

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
0-9"	10YR 3/2	100					Silty Clay Loam	
9-20"	10YR 5/2	70	7.5YR 5/6	30	C	PL	Silty Clay Loam	

[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)
- X 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:

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)
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- ___ 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:

Appendix C:
Study Area Photographs

DP1, Looking north (3/21/23)

DP1, Looking east (3/21/23)

DP1, Looking south (3/21/23)

DP1, Looking west (3/21/23)

DP2, Looking north (3/21/23)

DP2, Looking east (3/21/23)

Appendix C:
Study Area Photographs

DP2, Looking south (3/21/23)

DP2, Looking west (3/21/23)

DP3, Looking north (3/21/23)

DP3, Looking east (3/21/23)

DP3, Looking south (3/21/23)

DP3, Looking west (3/21/23)

Appendix C:
Study Area Photographs

DP4, Looking north (3/21/23)

DP4, Looking east (3/21/23)

DP4, Looking south (3/21/23)

DP4, Looking west (3/21/23)

DP5, Looking north (3/21/23)

DP5, Looking east (3/21/23)

Appendix C:
Study Area Photographs

DP5, Looking south (3/21/23)

DP5, Looking west (3/21/23)

DP6, Looking north (3/21/23)

DP6, Looking east (3/21/23)

DP6, Looking south (3/21/23)

DP6, Looking west (3/21/23)

Appendix C:
Study Area Photographs

DP7, Looking north (3/21/23)

DP7, Looking east (3/21/23)

DP7, Looking south (3/21/23)

DP7, Looking west (3/21/23)

DP8, Looking north (3/21/23)

DP8, Looking east (3/21/23)

Appendix C:
Study Area Photographs

DP8, Looking south (3/21/23)

DP8, Looking west (3/21/23)

DP9, Looking north (3/21/23)

DP9, Looking east (3/21/23)

DP9, Looking south (3/21/23)

DP9, Looking west (3/21/23)

Appendix C:
Study Area Photographs

DP10, Looking north (3/21/23)

DP10, Looking east (3/21/23)

DP10, Looking south (3/21/23)

DP10, Looking west (3/21/23)

DP11, Looking north (3/21/23)

DP11, Looking east (3/21/23)

Appendix C:
Study Area Photographs

DP11, Looking south (3/21/23)

DP11, Looking west (3/21/23)

DP12, Looking north (3/21/23)

DP12, Looking east (3/21/23)

DP12, Looking south (3/21/23)

DP12, Looking west (3/21/23)

Appendix C:
Study Area Photographs

DP13, Looking north (3/21/23)

DP13, Looking east (3/21/23)

DP13, Looking south (3/21/23)

DP13, Looking west (3/21/23)

DP14, Looking north (3/21/23)

DP14, Looking east (3/21/23)

Appendix C:
Study Area Photographs

DP14, Looking south (3/21/23)

DP14, Looking west (3/21/23)

DP15, Looking north (3/21/23)

DP15, Looking east (3/21/23)

DP15, Looking south (3/21/23)

DP15, Looking west (3/21/23)

Appendix C:
Study Area Photographs

DP16, Looking north (3/21/23)

DP16, Looking east (3/21/23)

DP16, Looking south (3/21/23)

DP16, Looking west (3/21/23)

DP17, Looking north (3/21/23)

DP17, Looking east (3/21/23)

Appendix C:
Study Area Photographs

DP17, Looking south (3/21/23)

DP17, Looking west (3/21/23)

DP18, Looking north (3/21/23)

DP18, Looking east (3/21/23)

DP18, Looking south (3/21/23)

DP18, Looking west (3/21/23)

Appendix C:
Study Area Photographs

DP19, Looking north (3/21/23)

DP19, Looking east (3/21/23)

DP19, Looking south (3/21/23)

DP19, Looking west (3/21/23)

PP1, Looking north (3/21/23)

PP1, Looking east (3/21/23)

Appendix C:
Study Area Photographs

PP1, Looking south (3/21/23)

PP1, Looking west (3/21/23)

PP2, Looking north (3/21/23)

PP2, Looking east (3/21/23)

PP2, Looking south (3/21/23)

PP2, Looking west (3/21/23)

Appendix C:
Study Area Photographs

PP3, Looking north (3/21/23)

PP3, Looking south (3/21/23)

PP4, Looking north (3/21/23)

PP4, Looking south (3/21/23)

PP5, Looking north (3/21/23)

PP5, Looking east (3/21/23)

Appendix C:
Study Area Photographs

PP5, Looking south (3/21/23)

PP5, Looking west (3/21/23)

PP6, Stream 1 looking upstream (3/21/23)

PP6, Stream 1 looking downstream (3/21/23)

PP7, Stream 1 looking upstream (3/21/23)

PP7, Stream 1 looking downstream (3/21/23)

Appendix C:
Study Area Photographs

PP8, Stream 1 looking upstream (3/21/23)

PP8, Stream 1 looking downstream (3/21/23)

PP9, Stream 1 looking upstream (3/21/23)

PP9, Stream 1 looking downstream (3/21/23)

PP10, Stream 1 looking upstream (3/21/23)

PP10, Stream 1 looking downstream (3/21/23)

Appendix C:
Study Area Photographs

PP11, Stream 1 looking upstream (3/21/23)

PP11, Stream 1 looking downstream (3/21/23)

PP12, Looking east (3/21/23)

PP12, Looking west (3/21/23)

PP13, Stream 1 looking upstream (3/21/23)

PP13, Stream 1 looking downstream (3/21/23)

Appendix C:
Study Area Photographs

PP14, Looking north (3/21/23)

PP14, Looking south (3/21/23)

PP15, Looking north (3/21/23)

PP15, Looking east (3/21/23)

PP15, Looking south (3/21/23)

PP15, Looking west (3/21/23)

Appendix C:
Study Area Photographs

PP16, Looking south (3/21/23)

PP17, Looking north (3/21/23)

PP17, Looking east (3/21/23)

PP17, Looking south (3/21/23)

PP17, Looking west (3/21/23)

PP18, Looking north (3/21/23)

Appendix C:
Study Area Photographs

PP18, Looking east (3/21/23)

PP18, Looking south (3/21/23)

PP18, Looking west (3/21/23)

PP19, Looking north (3/21/23)

PP19, Looking east (3/21/23)

PP19, Looking south (3/21/23)

Appendix C:
Study Area Photographs

PP19, Looking west (3/21/23)

PP20, Looking north (3/21/23)

PP20, Looking east (3/21/23)

PP20, Looking south (3/21/23)

PP20, Looking west (3/21/23)

PP21, Stream 1 looking upstream (3/21/23)

Appendix C:
Study Area Photographs

PP21, Stream 1 looking downstream (3/21/23)

PP22, Stream 1 looking upstream (3/21/23)

PP22, Stream 1 looking downstream (3/21/23)

PP23, Stream 1 looking upstream (3/21/23)

PP23, Stream 1 looking downstream (3/21/23)

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Division of Nature Preserves
402 W. Washington St., Rm W267
Indianapolis, IN 46204-2739

November 16, 2023

Darrell A. Edwards
Weihe Engineers, Inc.
10505 N. College Avenue
Indianapolis, IN 46280

Dear Darrell A. Edwards:

I am responding to your request for information on the threatened or endangered (T&E) species, high quality natural communities, and natural areas for the Spring Creek Proposed Residential Development Project located within Boone County, Indiana. The Indiana Natural Heritage Data Center has been checked and included you will find a datasheet with information on the T&E species documented within 0.5 mile of the project area.

If you need a review of the impacts to the animal species mentioned or a general environmental review, you can submit the project information (description, location map, and copy of this letter) to the DNR Division of Fish and Wildlife Environmental Coordinator, at environmentalreview@dnr.in.gov (preferred), or send to the street address below.

Department of Natural Resources
Environmental Review
Division of Fish and Wildlife
402 W. Washington Street, Room W273
Indianapolis, IN 46204

The information I am providing does not preclude the requirement for further consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973. If you have concerns about potential Endangered Species Act issues you should contact the Service at their Bloomington, Indiana office.

U.S. Fish and Wildlife Service
620 South Walker Street
Bloomington, Indiana 47403-2121
(812)334-4261

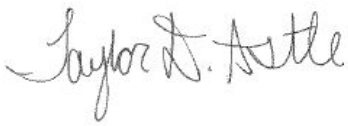
Please note that the Indiana Natural Heritage Data Center relies on the observations of many individuals for our data. In most cases, the information is not the result of comprehensive field surveys conducted at

particular sites. Therefore, our statement that there are no documented significant natural features at a site should not be interpreted to mean that the site does not support special plants or animals.

Due to the dynamic nature and sensitivity of the data, this information should not be used for any project other than that for which it was originally intended. It may be necessary for you to request updated material from us in order to base your planning decisions on the most current information.

Thank you for contacting the Indiana Natural Heritage Data Center. You may reach me at (317)233-2558 if you have any questions or need additional information.

Sincerely,



Taylor Davis Astle
Indiana Natural Heritage Data Center

Enclosure: invoice
datasheet

November 16, 2023

INDIANA HERITAGE DATA WITHIN 0.5 MILE OF:

Spring Creek Proposed Residential Development, Boone County

Sci. Name	Com. Name	State	Fed.	Date	Site
Bird					
Cistothorus palustris	marsh wren	SE		1997	NORTH OF LEBANON
Rallus limicola	Virginia Rail	SE		1993	NORTH OF LEBANON

Fed: E = Federal endangered; T = Federal threatened; C = Federal candidate species

State: SE = State endangered; ST= State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; no rank - not ranked but tracked to monitor status

WEIHE ENGINEERS
Land Surveying | Civil Engineering
Landscape Architecture
Build with confidence℠

November 16, 2023

US Army Corps of Engineers
600 Martin Luther King Jr. Place
P.O. Box 59
Louisville, KY 40201-0059

RE: **Section 404 WQC Regional General Permit Notification**
Stormwater Outfall Construction
Spring Creek Development
Lebanon, Boone County, Indiana

Dear Sirs:

Attached for your review and processing is a submittal of the notification and supporting documentation reflecting the intent of Beazer Homes of Indiana, LLC to comply with the general conditions of RGP No. 1. Documents and application for the construction of the stormwater outfall into Storms Creek for the proposed residential development of Spring Creek.

If you have any questions concerning this notification or supporting documents enclosed, please do not hesitate to contact me.

Sincerely,

WEIHE ENGINEERS, INC.

Darrell A. Edwards

Darrell A. Edwards, P.E., CFM
Project Engineer

c: Chad Oldham, Beazer Homes of Indiana, LLC
Indiana Department of Environmental Management

Enclosure